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Family Policy's Mechanisms for Affecting Fertility Intentions

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Abstract

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The aim of this study is to investigate the mechanisms by which family policies affect fertility intentions. Low fertility in advanced societies is a reflexive reaction of both the young and women to increased income/employment insecurity, difficulties in work-family reconciliation, and the gender equity gap between the public and private sphere, which have been caused by changes in labour market and gender structures as a result of post-industrialisation. The current study attempts to examine whether and how family policies address these new social risks and difficulties experienced by the young and women in post-industrial society and,

in turn, influence fertility intentions.

Based on previous theoretical discussions and empirical evidence, four different paths by which family policies can raise second-birth intentions was postulated and tested. These four family policy mechanisms for affecting fertility intentions are as follows. First, family policies can directly increase second-birth intentions by providing financial support for families with children, which offset the costs of having and rearing children. Second, family policies can indirectly increase second-birth intentions by encouraging female labour market participation, which contributes to household incomes. Third, family policies can moderate the relationship between female labour market participation and second-birth intentions and, in turn, strengthen the positive indirect effect of family policies on second-birth intentions via female labour market participation. Finally, family policies can indirectly increase seond-birth intentions by encouraging male household labour participation, which contributes to gender equity within families.

In testing the four mechanisms of family policies on second-birth intentions, the present study conducted multilevel path analysis. Individual-level data was sourced from Waves 2 and 5 of the European Social Survey administered in 2004 and 2010, respectively. Country-level data was collected from the Eurostat Social Spending Database, the OECD Family Database, and the annual

review reports published by International Network on Leave Policies and Research and the Global Gender Gap Index (GGGI).

Based on the above findings, a theoretical explanation of the findings is presented. First, the results of this research support the new home economics' approaches to a decline of fertility rates in developed countries. By offsetting direct and indirect costs of having and rearing a child, Early Childhood Education and Care (ECEC) services, and paid leave for the mother directly increase fertility intentions of women with a child (in 2010). Second, the effect of mechanisms of ECEC services and leave for the mother on second-birth intentions differ according to the social context of the association between female labour market participation and fertility outcomes. When the relationship between female labour market participation and second-bi intentions is positive, ECEC services and leave for the mother exert a positive impact on second-birth intentions . Otherwise, when the association between female labour market participation and second-birth intentions is negative, ECEC services exert a positive influence on second-birth intentions, by moderating the relationship between female labour market participation and second-birth intentions. Third, ECEC services and leave for the mother mitigate the impact of economic uncertainty on fertility outcomes. The positive impact of ECEC services and leave for the mother on second-birth intentions was greater in 2010 than 2004. These results

indicate that family policy provision can help parents to sustain income and job security, even after having a child under circumstances of increasing economic uncertainty. Lastly, a gender equity approach with regard to fertility is partially supported by this study. ECEC services and paid leave for the father significantly increased men's share of housework within couples with one child; however, this positive effect was not transmitted to second-birth intentions. When the indirect path of family policy provisions on second-birth intentions via male partners' housework participation was added to the analysis model, the interrelationship between family policy provisions, mothers' working hours, and second-birth intentions was often significantly affected. Such results suggest that men's participation in housework (encouraged by ECEC services) and leave for the father somehow change the context within which family policies, female labour market participation, and fertility intentions coexist.

The policy implications in Korea are as follows. First, although a significant increase in state financial support for ECEC services over the last decade were anticipated to contribute to a rise in fertility rates in Korean society, the positive effect of ECEC services on fertility outcomes is possibly limited (unless the association between female labour market participation and fertility outcomes is changed from negative to positive). More comprehensive

policy intervention is seemingly required to change the relationship between female labour market participation and fertility outcomes. For example, reducing gender wage gap, flexible working arrangements, and changing workplace culture. Second, the level of payments in childcare-related leave schemes are still low, and the recipients of childcare-related leave schemes in Korea are limited. To increase use of childcare-related leave schemes, the levels of leave payments should be increased further and the entitlement to childcare-related leave schemes needs to be extended to not only full-time/regular employees but also irregular employees and self-employers who account for a substantial portion of total employment in the Korean labour force. Finally, bearing in mind increasing levels of income inequality and high levels of relative income child poverty in Korea, the state's financial support to families with children is still low and should be expanded further. However, the increase of family allowance for families with children is necessarily linked to active policies for encouraging female labour market participation, because the negative impact of cash benefits on women's labour supply was evident in this study as well as prior research.

Keywords: Family policy, Fertility, Work-family reconciliation, Gender equity, Economic recession, Post-industrialisation, Multilevel path analysis

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I. Introduction

1. Background and significance of the study

There have been intense debates about whether states should intervene in the issue low fertility and whether they should use family policy as a tool to increase fertility rates. Some contend that the government should push for fertility policies because very low fertility is deemed harmful to national well-being; however, the effectiveness of family policy in increasing fertility outcomes is questioned by some. Others suggest the transformation of a demographic policy paradigm that focuses on enhancing life qualities rather than raising fertility rates. Meanwhile, there is an argument that cautions against the instrumentalisation of women's bodies and lives, objecting to the problematisation of low fertility in social politics.

Each argument regarding fertility is respectful, and most of all it seems that raising levels of life quality is a better approach to low-fertility and aging population issues, instead of just aiming for increased fertility rates. Nevertheless, 'fertility intention' is still a meaningful dependent variable in social policy research, because it is a holistic and comprehensive indicator that can show how effectively welfare states address new social risks and difficulties experienced by the young—especially women—in post-industrialised society.

In recent decades, advanced societies[1] have witnessed significant erosion of both lifelong full-time employment and the gender-specific family model in post-industrial society. Transition to knowledge-based industries and increased labour market flexibility under the spread of globalisation and neo-liberalism have resulted in a significantly precarious and segmented labour market. The proportion of low-waged (sometimes very low-waged), temporary and insecure employment in labour markets has increased; a dualism between insiders (in formal employment) and outsiders (in atypical employment) has deepened; and the wage gap between high- and low-skilled jobs has widened. Consequently, a sense of risk and insecurity has intensified and become generalised (Beck, 1999; Häusermann & Schwander, 2011; Standing, 1999). Meanwhile, the growth of women's educational attainment, earning power, and employment opportunities (coincidental with men's declining earning power and job insecurity) has made female employment more pervasive and necessary (Esping-Andersen, 2009; Standing, 1999; Thévenon, 2013). While public responsibilities are now shared more equally among couples, family responsibilities are not. In addition, some welfare states have been reluctant to intervene in childcare and gender inequity in family relations. Consequently, women have continued to suffer from the double impact of labour market and

1) In this study, 'advanced societies (countries)' or 'developed society (countries)' refer to economically advanced or developed societies.

family responsibilities, without men's participation in family responsibilities or state policy support for work-family role combinations.

Welfare states should have responded to such changes in the labour market and gender structure. This is because the foundation of the old social-security system has collapsed; however, the transformation of some welfare states has been gradual, residual, and varied (Armingeon & Bonoli, 2006; Taylor-Gooby, 2004;). Some individuals started to find ways of reducing risk and insecurity and solving the problem of work-family role incompatibility. Young people are increasingly devoting themselves to investing in their human capital (through education and work experience), whilst delaying family formation so that they can achieve and sustain earning and career stability (McDonald, 2006). Furthermore, as the motherhood penalty increases through work-family incompatibility, women give up having a(nother) child or even getting married. Consequently, the reflexive reactions of the young (and women in particular) to the post-industrialised labour market and gender structure have resulted in very low fertility rates in some advanced societies.

Accordingly, low fertility provides the most visible and comprehensive indicator of the way welfare states fail to sufficiently and properly respond to new social risks and difficulties experienced by the young (and women) in post-industrial society. The question

then arises what can the welfare states do about this issue.

In recent decades, welfare states have attempted to deal with the new social risks driven by post-industrialisation in various ways. For instance, social security systems that were established and consolidated in industrial society have continued to reform in order to adjust to changed demographic, labour market and gender structure in post-industrial society. Active labour market policy and youth employment have been expanded. The introduction of basic income systems has been discussed and in some cases even experimented

In this study, attention is given particularly to the role of family policy in addressing income and employment insecurity, work-family reconciliation, and the gender equity gap between the public and private sphere. These are typical difficulties experienced by the young, especially women, which are also considered important factors in relation to the decline of fertility in post-industrialised society. Theoretically, family policy can influence rates of fertility in a positive way by cutting the cost of having a child, diminishing the conflict between work and family responsibilities, and improving gender equity (Becker, 1981; McDonald, 2000a). Consequently, the question of how effective such family policy strategies can be in increasing fertility intentions arises.

Previous studies on the impact of family policies on fertility demonstrate quite diverse results in terms of the strength and even

direction of the effects, depending on the kinds of policy measures and demographic and contextual conditions (Balbo et al., 2013; Gauthier, 2007; Neyer & Andersson, 2008; Thévenon & Gauthier, 2011;). Despite this, we can generally conclude that family policies positively affect fertility, regardless of some mixed and even contradictory studies. For example, cash transfers positively affect the timing of births (but not the number), and childcare services for children under three that are good quality, affordable, and available have a positive effect on family size. Furthermore, well-paid childcare-related leave (that is not too long) positively affects fertility, while analyses are relatively rare

From past research, it is not necessarily the case that family policies contribute to improvements in low rates of fertility by intervening in new social risks and difficulties. This is because previous studies of the association between family policies and fertility failed to analyse the processes by which family policies affect fertility. All previous analyses on the impact of family policies on fertility intention have only examined the direct linear relationship between family policies and fertility outcomes. Research results were interpreted such that family policies increased fertility by reducing the costs of childrearing and the incompatibility of work and family responsibilities; frankly, such explanations are plausible, but unproven. Thus, previous analyses on the association between family policies

and fertility present a 'black box' that necessitates further investigation.

In this study, an examination of the mechanisms of family policy on fertility intentions is undertaken. Although no empirical research is conducted, by synthesising economic and sociological theories on fertility and literature on family policy, it is possible to propose that family policy could raise levels of fertility intention both directly (by providing financial support to families with children) and indirectly, by encouraging women's paid work, creating favourable conditions for reconciliating work and family responsibilities, and enhancing gender equity in the home.

In detail, based on previous theoretical discussions and empirical evidence, it is hypothesised that family policies affect fertility intention through four pathways. The first concerns the direct effects of family policy on fertility intention. Family policies that provide direct financial support for families with children offset the costs of childrearing, leading to increased fertility intention. The second pathway concerns the indirect effect of family policy on fertility intention by promoting female labour market participation. From an economic perspective, women's earnings contribute to household economic conditions and could, in turn, solve the problems of the higher costs of childrearing and income and employment insecurity, which delay an individual’s transition to parenthood. Third, family policies might moderate the indirect effects of family policies

on fertility intention through female labour market participation. Family policies function to help individuals—particularly women—combine work with family responsibilities. Increasing the compatibility of work and family roles could further enhance the positive income effects of female labour market participation on fertility intention by reducing the opportunity costs of motherhood, thus inducing an increase in fertility intention. Finally, it is supposed that family policies indirectly affect fertility intention by encouraging male household labour participation. From a gender equity perspective, men's increased participation in childcare and housework can enhance gender equity within family relations and, in turn, diminish the gender equity gap between the public sphere and the home, which can increase fertility rates.

To identify and elaborate on the mechanisms by which family policies affect fertility intentions is important when analysing the effects of family policies on fertility and implementing them in practice, because family policies are multidimensional. Family policy is not merely a measure but an architect of mixed policy instruments that have different functions and are often employed for several different policy goals These include poverty relief, women's employment, work-family role reconciliation, gender equality, and child development, as well as fertility rates. Hence, different policy measures may result in different outcomes in terms of women's

participation in the labour market, men's participation in household labour, and the compatibility of work and family responsibilities, all of which are important factors in terms of fertility outcomes. This means that even though two different family policy measures can demonstrate identical strength and direction of effects on fertility, each could actually take a different path to transmit its effects, and therefore have quite contrasting consequences for families and society. Analysing the process by which family policies affect fertility intentions and outcomes helps to clarify links between family policies, women's employment, gender equity, and fertility rates. Furthermore, it enables the identification of potential effects, non-effects and side-effects of family policies on fertility and other valuable social outcomes as well. The better we understand the processes by which policies work, the greater the potential to achieve enhanced intended outcomes with fewer unintended consequences.

In this study, a multilevel mediation and moderated mediation model was deployed to analyse the ways in which family policy affect fertility intentions. Path analysis was required to examine the proposed direct, indirect, and conditional indirect mechanisms of family policy on fertility intentions. In addition, multilevel modelling was used to capture the effects of family policy on fertility intentions, controlling for individual- and country-level heterogeneity. Prior research on the impact of family policy on fertility outcomes was

divided according to country-specific and cross-country analyses. It was found that the former approach could not extract the impact of country-specific contexts on fertility and the latter approach could not extract the impact of individual characteristics on fertility. Taking account of such limits in prior research, this study conducted multilevel analyses, which included socio-demographic variables at an individual-level, and family policy, gender equity, and labour market context at country-level. Furthermore, the multilevel path analysis was carried out using data for the years 2004 and 2010. Accordingly, it is possible to compare how the mechanisms of family policy on fertility intentions change in the context of unstable and insecure economic contexts.

2. Research aim and questions

The aim of this study is to investigate the mechanisms by which family policies affect fertility intentions. The current research considers low fertility rates in advanced societies an unintended consequence of post-industrialisation, and attempts to examine whether and how family policies exert effects on fertility intentions by considering new social risks and difficulties in post-industrialised society (for example income and employment insecurity, work-family reconciliation, and the gender equity gap both in public and home settings). The result of this study is expected to provide concrete

empirical evidence regarding economic and sociological theories about fertility outcomes. This will deepen our knowledge of family policy and contribute to more effective and fairer implementation of family policy in practice. The current study examines the mechanisms of family policy (specifically family allowance, ECEC services, childcare-related leave for the mother, and childcare-related leave for the father) on fertility intentions by pursuing four research questions.

Research Question 1. Do family policies (family allowance, ECEC services, childcare-related leave for the mother and childcare-related leave for the father) affect second-birth intentions directly?

Research Question 2. Do family policies (family allowance, ECEC services, childcare-related leave for the mother and childcare-related leave for the father) have an indirect effect on second-birth intentions through female labour market participation?

Research Question 3. Do family policies (family allowance, ECEC services, childcare-related leave for the mother and childcare-related leave for the father) moderate the relationship between female labour market participation and second-birth intention and, in turn, have a conditional indirect effect on second-birth intentions through female labour market participation?

Research Question 4. Do family policies (family allowance,

ECEC services, childcare-related leave for the mother and childcare-related leave for the father) have an indirect effect on second-birth intentions through male household labour participation?

II. Literature Review

1. Theoretical discussion

This section attempts to make a theoretical argument on the reasons for very low fertility that has been sustained in advanced societies for quite a long time, and on the role of family policies in raising fertility levels. This section is largely organised into two parts; the first identifies how fertility was precipitated and has deteriorated by changed economic and gender structures in developed countries based on previous theoretical discussions on fertility among economists and sociologists. In turn, based on the theoretical discussions about fertility in the first part, the second part of this section generates a plausible way that family policies can affect fertility by considering the various functions of family policies.

1.1 Determinants of low fertility in post-industrial society

1.1.1 Larger child-rearing costs

Economists argue that the larger costs of children have led to the observed long-term decline in fertility experienced by developed societies. The conventional economic approach perceives fertility decisions at the individual level as based on a utility-maximisation process that considers the costs and benefits of having and raising children given an income constraint (Becker, 1981). In this simple

setting, if the child-rearing costs increase, individual's demand for children will decrease.

According to the economic literature, the cost of raising children has increased in developed countries. There are two mechanisms involved in such an increasing trend in advanced economies. First, 'out-of-pocket' costs (for food, housing, clothing, childcare services, education, etc.) increase because parents invest further in the human capital of their child. In developed economies, the return to child quality (human capital) increases as technology progresses (Galor & Weil, 2000) and/or as the level of income rises (Becker et al., 1990). In response to technological progress and income growth, parents raise their investment in the human capital of their child and, thus the substitution of quality for quantity of children is induced.

Second, the opportunity costs of raising and educating children have increased (Becker, 1981; Willis, 1974). Childrearing is a time-intensive activity, particularly for mothers in gender-specialised family models. Given that rearing children is relatively time intensive, an increase in women's wages wouldnot only increase the household's real income but also the opportunity cost of children, which involves a loss of earning and career prospects due to the reduced/ interrupted labour supply and the time cost of raising and educating a child and doing household labour. In fact, for the last several decades,

developed societies have witnessed a considerable rise in women's educational attainment and work opportunities and, a steady increase in women's wage (Engelhardt & Prskawetz, 2004a). Women have been suffering from an increase in 'motherhood penalty', inducing them to have fewer children (Esping-Andersen, 2009).

1.1.2 Economic uncertainty

In advanced economies, while the costs of having and rearing a child have increased, economic uncertainty has also increased, which intensifies pressure on fertility decline. The idea that economic conditions in society affect fertility is deeply embedded in family demography; it has been hypothesised that economic recessions negatively affect fertility by increasing couples' economic hardship, labour market uncertainty and sense of risk and uncertainty about future economic conditions, all of which lead to fertility decline by postponing partnership formation, marriage and childbearing, particularly that of first births, and by increasing union dissolution and divorce (Goldstein et al., 2013; Matysiak et al., 2018; Sobotka et al., 2011). Economic recessions happen temporarily, and the impact of economic recession on fertility is therefore assumed to be temporary and limited to the timing of childbearing, not its quantity (Sobotka, et al., 2011). However, if economic uncertainty were to became institutionalised, what would happen to fertility?

In recent decades, advanced economies have experienced the institutionalisation of economic uncertainty. The decline of the manufacturing sector and labour market deregulation as promoted by economic globalisation and neo-liberalism have increased the insecurity of employment and income in developed societies (Beck, 1999; Häusermann & Schwander, 2011; Standing, 1999). Paid employment has become increasingly precarious due to the spread of temporary, insecure, discontinuous and informal employment. Earning gaps between high- and low-skilled jobs have become larger, the poverty trap has deepened and the sense of risk and insecurity has become more generalised.

In such economic contexts, the young and women are in greater danger of unemployment and poverty than most because they are relatively less skilled and/or experienced and, in turn, most likely to occupy insecure and low-income jobs. To minimise the risk of economic uncertainty, the young and women first and foremost tend to invest in education and employment experience, postpone parenthood and reduce their number of children until securing their labour market positions and earning power (Beck, 1999; McDonald, 2006; Olàh & Fratczak, 2013).

In particular, labour market dualism between insiders and outsiders seems to heighten the negative effects of uncertainty on fertility. This is expected to precipitate fertility decline through two

mechanisms (Adam, 1996; Brinton & Lee, 2016; Estévez-Abe, 2013; Häusermann & Schwander, 2011). Internal labour market privileges men (vs. women) and the experienced (vs. the young) with respect to job security and perspectives, earnings potential, social welfare benefits and political mobilisation. Therefore, strong employment protection for regular workers can create difficulties for young people who attempt to find employment and secure stable job positions, which leads to delayed family formation and/or childbearing. Second, in the context of strong dualism, the 'motherhood penalty' has increased because women are forced to choose between embarking on their careers and either delaying or giving up family formation, and the other is quitting work over childbearing and never returning to the labour market.

1.1.3 'Uncompleted gender revolution': gender equity gap between public and private spheres

Finally, the role of gender equity in shaping fertility has increasingly drawn scholars' attention over the last decade and a half. Gender equity has become employed in analyses of fertility determinants because the economic theories have failed to explain recent fertility trends (King, 2018). Under economic theories, economic development and the growth of women's labour force participation in developed economies negatively affect fertility.

However, researchers in recent decades have found that the link between economic development and fertility and the correlation between female employment and fertility at the country level have reversed from negative to positive among highly developed countries (Ahn &Mira, 2002; D'Addio & Mira d'Ercole, 2005; Myrskylä et al., 2011). Based on the gender equity approach, such a reversal relationship between economic development and fertility can happen inn condition of higher gender equity levels.

The gender equity approach contends that the gender equity gap between public and private spheres leads to very low fertility in post-industrial societies (Esping-Andersen, 2009; 2015; Goldscheider et al., 2015; McDonald, 2000a; 2000b; 2006; 2013). Notwithstanding a great improvement in gender equity in the public sphere (such as education and employment), gender equity in the private sphere still lags. Women and men start sharing tasks in the public sphere due to the increase in women's earning power and the declines in men's earnings and job security. However, as men are reluctant to share tasks in the private sphere, women are still expected to do the majority of childcare and household works and thus suffer from 'double loads' and feel that this is 'unfair'. Thus, women are less willing to form permanent relationships or will have no or fewer children. Scholars assert that fertility will rise when the 'gender revolution' is complete with men equally contributing to household

and childcare work.

1.2 The role of family policy in shaping fertility

As seen above, economic and sociological theories attribute fertility decline in advanced economies to the increased costs of children, increasing income/employment insecurity and incomplete gender revolution. Based on such theoretical discussion on fertility determinants, this section attempts to identify how family policies affect fertility outcomes; it begins by addressing features of family policy.

1.2.1 Multidimensionality and family policy regime

Family policy has been developed by layering new instruments with new policy aims (Daly & Ferragina, 2019; Gauthier, 1996). The first form of family policy was family allowances and maternity leave schemes. Family allowance schemes have been implemented in welfare states since the First World War and were mainly in the form of taxation and benefits directed at families with children. Their objectives were either to encourage couples to have more children or to relieve poverty by redistributing resources among families. Maternity leave was enacted in European countries from the late nineteenth century amid growing concerns about the health of working mothers and their children.

Since the 1970s, family policy has extended into the territory of the labour market and employment policies with the intention of supporting family care functions in the changed context of increasing paid work by women and promoting gender equality. Paternity, parental and childcare leave and 'daddy quarter' schemes were newly introduced and have been extended in terms of duration and benefit levels. Early childhood education and care (ECEC) have been significantly expanded, and, in particular, childcare provisions for children aged 0-2 years have become more important.

Family policy developments occur through the process of layering results in multidimensional family policies. Family policy is multidimensional with regard to policy instruments, policy function and expected policy outcomes in gender and social equity (Pettit & Hook, 2009; Thévenon, 2011). The term 'family policy' encompasses various types of policy instruments, including public support of money, labour and time for families with children, such as child/family allowances, home-care allowances, formal childcare services, home-based childcare services and maternity, paternity, and parental leave and the 'daddy quota'. These instruments have various functions, such as compensating for childrearing costs, increasing mothers' labour force participation, enhancing fathers' household labour participation and/or supporting early childhood development.

On the one hand, family policy consists of a variety of

specific policy instruments; on the other hand, their combination differs among countries. Previous studies on family policy regimes demonstrate that the degree of childcare support provided by the state as well as the way of organising different family policy programmes vary significantly in different welfare states (or welfare regimes) based on different policy orientations towards family and gender roles (Esping-Andersen, 1990; Korpi, 2000; Lewis, 1992; Litner, 2002). Although there are considerable variations regarding how to group welfare states according to family policy regimes, scholars commonly point out that the state provides income support, childcare services and childcare-related leave to families based on its own gender logic, which prescribes the tasks, duties and rights of the two sexes (Bettio et al., 2004; Boje et al., 2012; Esping-Andersen, 1999; Gauthier, 2002; Korpi, 2000; Lewis, 1992; Thévenon, 2011). Some countries support an earner-carer family model to emphasise gender equity. Some uphold a traditional bread-winner family model that emphasises traditional gendered roles. Others are reluctant to intervene in family affairs and instead aim to allow families and markets to do their jobs. For example, Western European countries provide generous cash benefits to families with children but not childcare services. Otherwise, for Nordic countries, state support for childcare services and leave schemes is comprehensive.

Thus, welfare states have their own gender logic, and such

different types of logic result in different forms of family support and, subsequently, different kinds of gender relations within a family (Korpi, 2000; Lewis, 1992; Sainsbury, 1999). Furthermore, different gender relations may result in different fertility outcomes. Although the effect of family policy regimes on fertility has not been fully uncovered, researchers argue that outcomes regarding female employment and fertility also vary according to family policy regime. For instance, Nordic countries that employ comprehensive family-friendly policies have the highest female employment and fertility rates among welfare states. In contrast, among southern European countries, the responsibility for childcare falls heavily upon the family in the absence of substantial family-friendly policies, and female employment and fertility are very low in these countries. Although cross-national quantitative reserach often reports limited and inconclusive effects of childcare policy provisions on fertility (Gauthier, 2007; Thévenon & Gauthier, 2011), it is empirically evident that women's paid work is positively related to fertility (D'Addio & Mira, 2005; Thévenon, 2011). Therefore, we can also assume that family policy regimes affect fertility outcomes directly or indirectly by changing female employment patterns. Bettio and Plantegna (2004) argue that childcare policy regimes may affect patterns of female employment and fertility by changing incentive structures for the organisation of work and family responsibility.

1.2.2 How family policies can increase fertility

Family policy, first, may enhance fertility rates by providing monetary support to families with dependent children. Higher costs for children and growing income/employment insecurity in developed societies have strained household budgets and led to smaller families. In such economic contexts, cash benefit programmes for families, such as child/family allowances and homecare allowances, can directly offset the burden of child costs and thus support couples in realising their fertility. Meanwhile, we need to keep in mind that these policies might encourage couples to sustain the male-breadwinner model and thus negatively affect gender equity in the public and private sphere, which also exerts a significant influence on fertility.

Second, family policy would increase fertility by enabling mothers to work. As women's earning power and employment opportunities increase while men's earning and employment security decline in the context of increasing economic uncertainty and risk, women's labour force participation can offer financial security to couples and thus help them realise their fertility.

However, woman's earning is not a sufficient but a necessary condition for increasing fertility. The positive effects on woman's earning on fertility can be realised in the condition, 'the reconciliation between work and family responsibilities'. Increasing women's earning power involves two opposing effects on fertility: income effects and

substitution effects (Becker et al., 1990; Day, 2018). Women's earning makes children more affordable on one hand (income effects) and costly due to increasing opportunity costs on other hand (substitution effects). If the negative substitution effect is larger than the positive income effect, fertility will decline. Meanwhile, If the positive income effect is larger than the negative substitution effect through family policies, such as paid-leave schemes and childcare service subsidies thus reducing the child rearing opportunity cost, fertility decline could be reversed (Day, 2018).

Third, if women's work-family role compatibility is socially supported by family policies such as childcare services and leave scheme programmes, these policies can diminish the ‘motherhood penalty’ (opportunity costs) through enhancing the work-family role compatibility (Esping-Andersen, 2013) and help couples deal with higher 'out-of-pocket' costs by adding women's earnings to the household income. Otherwise, if women are unable to carry out both earner and carer roles, the opportunity costs of female employment have also been increased and young couples who experience or are at a high risk of income/employment insecurity will increasingly choose to have fewer or no children, rather than give up women's paid work.

Finally, family policy can contribute to fertility by enhancing men's participation in childcare and housework (Lappegård, 2010; Neyer et al, 2013). Childcare services and leave scheme programmes

are often referred to as gender equality policies because such policies contribute to gender equity both private and public sphere. In particular, specific measures for childcare-related leave arrangements (such as ‘daddy quota’) encourage fathers' participation in childcare and thus reduce women's burden as earner and career roles and feelings of unfairness.

2. Empirical evidence

This section attempts to search for empirical evidence for the theoretical argument on the role of family policies in shaping fertility that are addressed above: family policies can contribute to fertility through providing direct financial support for families with children, encouraging the female labour market and men's household labour participation, and enhancing the compatibility with work. I start by reviewing past studies on the impact of family policies on fertility and then look into previous analyses on various pairs of associations among family policies, women's employment, gender equity and fertility. This section ends by presenting empirical evidence on the impact of economic and gender contexts on fertility.

2.1 Effects of family policies on fertility

Empirical evidence on the effects of family policies on fertility is well documented. In general, empirical examinations on the

impact of family policies on fertility are polarised into country-specific and cross-country analysis. First, cross-sectional analyses at the country-level show relatively more mixed results (Gauthier, 2007; Neyer & Andersen, 2008; Thévenon & Gauthier, 2011). In detail, the generosity of cash benefits has either a positive impact (D'Addio & Mira d'Ercole, 2005; Enache, 2013;Gauthier, 1997; Luci & Thévenon, 2011; Ryu, 2005) or no effect on fertility (Kim & Hong, 2014). In terms of formal childcare services, childcare availability affects fertility positively (Castles, 2003; Hilgeman & Butts, 2009) or insignificantly (Luci & Thévenon, 2011). The expenditure in childcare servies affects fertility positively (Eun, 2015; Kim & Homg, 2014) or negatively (Luci & Thévenon, 2011). With regard to childcare leave, the impact of duration on fertility has been determined as positive (Adséra, 2004; Luci & Thévenon; Rovny, 2011; Ryu, 2005), negative (D'Addio & Mira d'Ercole, 2005; Hilgeman & Butts, 2009) or insignificant (Kim & Hong, 2014). The impact of payment duration on fertility has been dtermined as positive (Adséra, 2004; Luci & Thévenon, 2011), insignificant (Gauthier, 1997), negative (D'Addio & Mira d'Ercole, 2005; Hilgeman & Butts, 2009).

Meanwhile, country-specific analyses at the individual level show relatively consistent research results with respect to the role of child transfers and childcare services. The positive effects of childcare availability, childcare subsidy and child allowances on childbirth are

reported in Nordic countries (Björklund, 2006; Rindfuss et al., 2010; Walker, 1994), Germany (Fehr & Ujhelyiova, 2013; Haan & Wrohlich, 2011), Switzerland (Bonoli, 2008), Italy (Del Boca, 2002), Canada (Ang, 2015) and South Korea (Han & Lee, 2015). However, in terms of financial support, home-care allowance that entitles children not enrolled in formal childcare services delays the transition to a second birth and has lowered short-term fertility in Norway (Andersen et al., 2018).

Relatively fewer studies have examined the effects of childcare-related leave on fertility, and the research results are mixed. Walker (1994) founds that the expansion of parental leave benefits reduced the price of fertility in Sweden. Ang (2015) also reported that an increase in the levels of parental leave benefits substantially led to increased birth rates and labour participation rates among women of childbearing age in Canada. Matysiak and Szalma (2014) found that well-paid and universal parental leave in Hungary encouraged second births but led to late entry to employment; however, means-tested parental leave with flat-rate benefits in Poland had no significant association with progression to a second child, but induced women's employment entry shortly after birth. Meanwhile, Cygan-Rehm (2016) reports that the shift from a means-tested to an earnings-related benefit in Germany initially reduced subsequent childbearing and started to compensate by the end of the third year.

The work of Duvander and colleagues (2016) also confirmed that fathers using parental leave were more likely to have a second child in Norway, Sweden and Iceland, regardless of whether the father only used an amount up to the daddy quota or went beyond the quota. However, Farré and Gonàlez (2018) found that parents in Spain who were newly entitled to two weeks of paid paternity leave were less likely to have a subsequent child within the following six years in comparison with parents who were not eligible for the paternity leave. Han and Lee (2015) showed that in South Korea maternity leaves positively affected employed women's childbearing but parental leave had no effect.

Meanwhile, research using multi-level models, of which there are quiet few, confirm the positive effects of family policies on fertility. Billingsley and Ferrarini (2014) show that women's and men's intentions to have a first child are raised by both family policies supporting the earner-carer family model and the traditional one, but just earner-carer family support increases women's intention to have a second child. Yoon (2013) reported that formal childcare services for 0-2-year-old children increased the number of children in all social classes, and the duration of paid leave and cash benefits raised the number of middle-class children. Meanwhile, public expenditure in childcare services and the total duration of leaves have no effect on all social classes. Harknett, Billari, and Medalia (2014) examined the

relationship between individual-level fertility outcomes and macro-level support for childrearing from the government, labour market and extended families. In this research, public expenditure on families encouraged subsequent births after having a first child and the duration of paid parental leave increased the likelihood of having a first child.

Overall, previous studies have shown that the generosity of cash benefits, childcare services and leave schemes positively affect fertility. Otherwise, the magnitude and direction of effects vary according to the kinds of family policies and demographic and institutional conditions (Neyer & Andersen, 2008; Gauthier, 2007; Thévenon & Gauthier, 2011). Note is that multilevel analyses are quite limited, even though the issue of the unobserved heterogeneity of the individuals' social backgrounds and contextual characteristics is evidently significant in previous studies. Existing multilevel studies also have a limitation because labour market and gender contexts which have a significant influence on fertility and the relationships between family polices and fertility were not included in the analysis of family policies' impact on fertility. Furthermore, all previous analyses just pursued the direct effects of family policies on fertility while totally overlooking other possible processes.

Therefore, the next sections will examine other possible paths that the effects of family policies on fertility may follow, and the

impact of other institutional contexts, including labour market and gender structures, on fertility. First, empirical evidence on the association among family policy, female labour market participation and fertility will be reviewed. Then, previous studies of the correlation among family policy, male household labour participation and fertility will be examined. Finally, I will study empirical evidence on the effects of economic and gender contexts on fertility.

2.2 Interrelationship between family policy, female labour market participation and fertility

2.2.1 Family policy and female labour market participation

Family policies affect both fertility and female labour market participation. Single-country analyses have consistently shown that childcare services and leave schemes encourage mothers' labour force participation while cash benefits lead to a decline in the female labour supply.

The positive effects of the expansion of childcare services, particularly for 0-2-year-olds, and subsidies are supported in Germany, Hungary, the U.S, South Korea, Norway and Switzerland. In detail, an increase in childcare subsidies that are conditional on employment led to an increase in mother's employment and working hours in Germany (Bick, 2016; Haan & Wrohlich, 2011). In case of the U.S., Guner and collegues (2014) found that making fully subsidised

childcare available to all households led to long-term increases in the participation and working hours of married women, and reduced the losses of human capital due to labour market disruptions caused by childrearing. The work of Davis and colleagues (2018) also showed that childcare subsidy programmes encouraged employment among low-income parents with young children in Minnesota. Lovász and Szabó-Morvai (2018) found that subsidised childcare increased Hungarian mother's labour supply by 11.7%. Han, Lee, and Hong (2017) analysed the impact of two types of childcare subsidy on married women labour supply in South Korea: the universal subsidy provided to all married women, and the conditional subsidy provided to only married women in work. The results showed that the universal subsidy respectively increased the female employment rate and average productivity by 0.23% and 0.34%, and the conditional subsidy increased them by 0.73% and 0.42%. Andersen and Havnes (2018) found that the use of childcare services for toddlers in Norway increased the labour supply of (cohabiting) mothers, but not fathers. Ravazzini (2018) showed that the expansion of childcare services encouraged women's labour market participation in Switzerland. Meanwhile, Bouchard and colleagues (2018) found that the introduction of free early childcare and education services for three- and four- year-olds for up to 20 hours per week in New Zealand in 2007 led to significantly reduced women's earnings.

Moreover, according to previous research results, increasing the duration and payment levels of leave schemes induce an increase in mother's labour supply. Note that too-extensive leave can discourage mothers from returning to work. In detail, parental leave reform from means-tested and flat-rate benefits for 24 months to earning-related benefits for 14 months (including a two-month 'father quota') in Germany increased the employment rate of mothers with children aged 13-24 months, particularly for the below-median income group (Geyer et al., 2015), and sped up mothers' return to work (Bergemann & Riphahn, 2010). Valentova (2018) reported that the introduction of parental leave in Belgium in 1999 increased mother's working hours. Rossin-Slater, Ruhm, and Waldfogel (2013) reported that the introduction of paid leave right raises the week work hours of mothers with children aged at 1-3 in California. Meanwhile, Kim (2018) found that extending the parental leave duration led to a increase in take-up rate (by 5%) and duration (by 50days), but decreased the probability of returning to work within 18 months after birth among women with an upper-middle wage level.

Meanwhile, the effects of cash transfers on female labour participation have rarely been studied but the research results have consistently shown the negative effects of cash transfers on female labour participation. Haan and Wrohlich (2011) and Fehr and Ujhelyiova (2013) showed that increased cash transfers to families in

Germany reduced the female labour supply. Ang (2015) also found that cash-transfer fertility incentives led to declined labour supply of women of childbearing age with children less than six years old in Quebec. Magda, Kielczewska and Brandt (2018) examined the impact of child benefits on female labour supply in Poland. The results showed that introducing the universal child benefits in 2016 decreased the labour force participation rate of mothers by 2-3%. The effect was higher among less-educated women.

Cross-country analyses also confirmed the positive effect of childcare services and parental leave on mother's employment. Pettit and Hook (2005) analysed the effects of family policies on women's employment by using data from 19 countries in multi-level modelling methods. Public childcare positively affected married women's and mothers' employment. Parental leave's duration also positively impact mothers' employment, but extensive leave rather discouraged mothers to participate at the labour market. Cukrowska-Torzewska (2017) investigated the effects of family policies on motherhood employment and wage gaps using data from 28 European countries. The high level of childcare availability tended to increase the probability of mothers' labour force participation, reducing the employment gap between women with and without children. While parental leave helped mothers reconcile work and family responsibilities, a too long leave disincentivised mothers from working, rather increasing the

employment gap between mothers and childless women. Thévenon (2013) analysed the influence of family policies on female labour force participation, full-time employment and part-time employment using country-level data for 1980-2007 from 18 OECD countries. Increased spending on parental leave payment was positively associated with full-time employment rates, but negatively affected the incidence of part-time work. As longer and/or better care services were provided, women tended to move from part-time to full-time work.

2.2.2 female labour market participation and fertility

Meanwhile, there is substantial evidence that the relationship between female labour market participation and fertility has been meaningfully transformed in recent decades. Cross-sectional studies have found that the correlation between female employment and fertility rates in OECD countries was negative in the 1970s but has become positive since the late 1980s (Ahn & Mira, 2002; Brewster & Rindfuss, 2000; D'Addio & Mira d'Ercole, 2005). The countries with the highest fertility rates, such as Nordic countries, have simultaneously exhibited the highest female employment rates. In contrast, the countries with the lowest fertility rates, such as Korea, Japan, Italy, Spain and Greece, have the lowest female employment rates. While pooled time-series analyses did not demonstrate a change

in sign for the association between female employment and fertility rate, they found that the magnitude and significance of the negative association has been falling (Engelhardt et al., 2004b; Kögel, 2004). Weakening and even reversed linkage between female employment and fertility are being increasingly observed at the individual level as well as the country level (Matysiak & Vignoli, 2008).

Adserá (2004; 2011a, 2011b) conducted cross-country analyses on how women's employment status affected fertility in European countries; these studies commonly showed that unemployment and temporary (short-term contract) employment were less likely to transition to giving birth a second time, but public-sector and part-time employment were positively associated with a second birth. In addition, although the negative effect of unemployment and temporary employment was evident among all women, less-educated women were the group most influenced by unemployment, and middle- or well- educated women were more relevant to temporary employment than unemployment.

Furthermore, previous findings showed that the degree to which women's employment affected fertility outcomes or vice versa varied among the examined countries. The meta-analysis of Matysiak and Vignoli (2008) confirmed that the negative relationship between women's employment and fertility was significantly reduced for younger cohorts. They also found that the causality effects varied in

different institutional settings. The negative effect of children aged 0-6 on maternal employment was largest in the conservative welfare regime and smallest in the social-democratic regime. The negative effect of women's employment on childbearing was largest in familialistic regimes and lowest in post-socialist countries.

Michaud and Tatsiramos (2011) investigated the effect of fertility on female employment in six European countries (Denmark, France, Germany, Italy, the Netherlands, Spain and the United Kingdom), and found various patterns for how birth affects employment between countries. In Denmark, the birth effects on employment was moderate and did not persist over time. In the United Kingdom, women had the highest effects of birth on employment, but this large effect was not long term. In France, Germany and the Netherlands, the effects of birth on employment were large and persisted over time. In contrast, in Italy and Spain, the birth effects were lowest among all countries. Michaud and Tatziramos argued that the different characteristics of labour market flexibility and family policies in countries made differences in the impact of fertility on female employment.

Matysiak and Vignoli (2013) reported that the effects of women's employment on fertility were considerably different between Italy and Poland. In Italy, employed women were more likely to postpone the transition to motherhood and also less likely to give

birth to a second child. Meanwhile, women's employment in Poland did not significantly affect whether they havd either a first or second birth. Moreover, Polish women who had lost their job after re-entry delayed in their second birth. Matysiak and Vignoli asserted that more Polish women tended to combine both their employment and childrearing than Italian women, despite the similar difficulties of work-family reconciliation that they faced because Polish women naturally regard themselves as homemakers and earners due to longer histories of women's employment.

To summarise previous evidence, first, family policies (childcare services and leave schemes) increased female labour market participation. Second, the effects of women's employment on childbearing have changed from negative to positive, while the magnitude and significance of the effects differ between countries. Scholars assert that the development and expansion of family policies have contributed to changes in the association between women's employment and fertility, and country heterogeneity of it, although empirical analyses on this claim have hardly been pursued until now (Ahn & Mira, 2002; Brewster & Rindfuss, 2000; D'Addio & Mira d'Ercole, 2005; Esping-Andersen, 2009; McDonald, 2006). Therefore, based on empirical evidence, we can assume that the positive effects of family policies on fertility may pass through and interact with

women's employment. In addition, the works of Michaud and Tatsiramos (2011), and Matysiak and Vignoli (2013) showed the necessity of considering the role labour market and gender contexts, apart from family policies, in shaping the association between female labour market participation and fertility.

2.3 Interrelationship between family policy, male household labour participation and fertility

2.3.1 Family policy and male household labour participation

The role of family policies in structuring families' gender relations has been embedded in social policy literature. The work of Lewis (1992), Korpi (2000) and Sainsbury (1999) are good examples. Their works commonly uncovered hidden policy logic and the effects of welfare states in terms of gender relations. The state provides family policies to families based on its own gender logic, which prescribes the tasks, duties and rights of the two sexes. Such logic differs between countries, different logics result in different methods of family support and, in turn, different kinds of gender relations within families. For example, some states that have a strong male-breadwinner ideology provide less childcare support to families because childcare is considered the women's responsibility. Consequently, women are situated in an unequal position with men in both labour market and families. Otherwise, some states based on

equalitarian ideology prefer equal relations between the two sexes and encourage women to participate in the labour market more and men to participated in childcare work through comprehensive childcare services and leave schemes.

Empirical evidence has confirmed the positive effects of family policies on gender equity in the home. Previous country-specific and -cross studies have consistently shown that childcare-related leave schemes reserved for fathers increase fathers' participation in childcare and household work. For single-country analyses, Haas and Hwang (2008) examined the impact of the number of days leave taken by fathers on fathers' participation in childcare and relations with children using the survey data of 365 employed Swedish fathers. They found that fathers who took more days of leave were more likely to participate in childcare and be satisfied with their children, while controlling for other factors (fathers' gender attitudes, parents' education and parents' work involvement). Almqvist and Duvander (2014) analysed a panel survey and interview data and reported that Swedish fathers taking long leave, more equally shared household tasks and childcare with their partners after their leave. Kotsadam and Finseraas investigated whether the implementation of the Norwegian daddy quota affected individuals' division of household labour and attitudes toward gender equality. They found that the introduction of the daddy quota significantly raised fathers' share of

clothes washing duties (the most unequally shared task) but had an insignificant effect on individual-level gender attitudes. In addition, Patnaik (2019) examined the effects of reforming Quebec Parental Insurance Program (QPIP), which improved benefit levels and introduced the 'daddy quata', on fathers' leave participation and paternity leave on the division of household labour. The results reported that the QPIP reform increased father's participation in leave and the paternity leave increased fathers' participation in household work in later years.

As in previous findings of cross-country analyses, Fuwa and Cohen (2006) analysed the effects of parental leave and public childcare on the division of household labour in 33 countries. They found that countries with longer parental leave policies had a more equal division of housework, while the effects of women's full-time employment on the egalitarian division of housework were lessened in countries with longer parental leave. Childcare policy had no significant impact on the division of household labour. More recently, Meil (2013) examined whether fathers' use of leave induced their greater participation in childcare and housework by using data from the 2005 European Working Conditions Survey (EWCS). In the results, controlling for relevant micro-level variables and the degree of gender equality at the national level, fathers taking paternity or parental leave were more likely to participate in childcare and

housework. In addition, the duration of leave taken by fathers and the existence of 'daddy quota' raised fathers' involvement in childcare.

2.3.2 Male household labour participation and fertility

There is empirical evidence that shows a positive association between the division of household labour and fertility. Mills, Mencarini and Tanturri (2008) found that the unequal division of household labour led to lower fertility intentions of women in Italy and the Netherlands. Cooke (2009) showed that, in both Italy and Spain, a wife's working hours significantly decreased their likelihood of a second birth but a husband's relative childcare increased the likelihood of them having a second child. Torr and Short (2004) explored whether couples' division of household labour affected fertility among dual-earner couples in the United States, and their results showed a U-shaped relationship between gender equity in the home and fertility. Couples were most likely to have a second child when wives' share of housework was relatively low. They were also more likely to move on a second birth when wives mostly did the housework. Meanwhile, couples who had a somewhat gendered division for the housework were less likely to have a second birth.

Similarly, the U-shaped relationship was also found between gender role attitudes and fertility. Arpino, Esping-Andersen and Pessin (2015) explored whether gender role attitudes towards female

employment affected fertility in 27 countries. They found a U-shaped relationship between gender-role attitudes and fertility. The curvi-linear association was moderated by the difference in gender attitudes between two sexes; more agreement the couple had on gender-role attitudes, more rapid changes were and the greater effect of gender egalitarian attitudes on fertility increased. Miettinen, Basten, and Rotkirch (2011) examined how egalitarian attitudes were related to fertility intentions in Finland. They also found that egalitarian attitudes increased men's risk of becoming a father, while gender attitudes did not affect women's childbearing intentions.

In a nutshell, previous studies on relationships among family policies, gender equity in the home and fertility have confirmed that some family policy measures (leave reserved to fathers) enhanced gender equality in family relations measured by the division of household labour between couples, and higher gender equality in family relations lead to higher fertility. Therefore, based on previous evidence, we can hypothesise that the positive effects of family policies on fertility may pass through raising men's participation in childcare and housework.

2.3 Gender equity and fertility

Although gender equity has increasingly drawn scholarly

attention, there have been few empirical investigations on the connection between gender equity and fertility. To summarise previous findings, gender equity in the public sphere seems to affect fertility in interactions with economic conditions, such as economic development and labour market structure.

The connection between gender equity and fertility, which were analysed at the national level, is less clear. Nakagaki (2018) showed that fertility and gender equity measured as by the Global Gender Gap Index (GGGI) had a J-shaped relationship. However, Mills (2010) found that the relationship between gender equity and fertility was varied according to different gender equality indices. The Gender-related Development Index (GDI) had an positive impact on fertility intentions, but the European Union Gender Equality Index (EU-GEI) negatively affected fertility intentions of women. The Gender Empowerment Measure (GEM), Gender Gap Index (GGI) and Social Institutions and Gender Index (SIGI) showed no significant impact.

However, previous analyses on the association among gender equity, economic conditions and fertility showed the interaction of gender equity with economic conditions in fertility outcomes. Brinton and Lee (2016) classified gender role ideologies as traditional, pro-work conservative, flexible egalitarian and full-egalitarian, and examined how gender role ideology affected fertility. They found that

gender role ideology influenced total fertility in interactions with labour market institutions. That is, the positive impact of flexible egalitarianism on total fertility was weakened when labour market institutions protected labour market insiders. Then, Myrskylä, Kohler, and Billari (2011) showed that the fertility-development association reversal (from negative to positive) was conditional on gender equality; countries that ranked high in development as measured by health, income and education but low in terms of gender equality continued a decline in fertility. Furthermore, Day (2018) attempted to explain how economic growth's impact on fertility may be reversed through closing the gender wage gap. She showed that rising female wages encouraged couples to raise female paid employment and to have more children by substituting childcare for maternal time. Such an inverse J-shaped effect of economic growth - via a low gender wage gap - on fertility depends on the value placed on children and family policies (subsidised childcare and maternity pay) that decrease the cost of mothers' time on rearing children.

2.4 Economic contexts and fertility

The nation-level economic contexts could influence the relationship between individual-level economic conditions (employment status or income) and fertility behaviour. First, economic downturn seems to affect fertility trends through increasing unemployment and

thus economic uncertainty. Empirical evidence has repeatedly suggested that an increase in unemployment and economic uncertainty during an economic recession is associated with decreased fertility rates (Bellido & Marcén, 2016; Comolli, 2017; Goldstein et al., 2013; Matysiak et al., 2018; Sobotka et al., 2011). Goldstein, Kreyenfeld, Jasilioniene, and Örsal (2013) found that the negative impact of unemployment on fertility was significant at all ages, but largest at younger ages. The work of Matysiak, Sobotka and Vignoli (2018) also confirmed the negative association between unemployment and fertility at all ages, including late reproductive ages. Based on the latter fact, they argued that an increase in unemployment during an economic recession might affect the timing and quantity of fertility. Their findings also showed that the negative relationship between unemployment and fertility were particularly larger in Southern Europe and Central and Eastern Europe, where state support against unemployment and poverty was relatively low. Furthermore, Comolli (2017) showed that female unemployment was more strongly (negatively) associated with fertility than other indicators (total and youth unemployment).

Despite the relevance of labour market institutions, attempts to empirically investigate the connection between the pattern of labour market dualism and fertility have been quite limited until recently. Briton and Lee (2016) showed that employment protection for regular

workers positively affected country-level fertility, but the interaction between employment protection for insiders and young men's unemployment negatively affected total fertility rates. This suggests that the labour market structure where favours already-employed insiders (mostly middle-aged workers), makes it difficult for young men to enter the labour market and to transfer to family formation and childbearing.

Schmitt (2012) found that women in the UK and Germany, which have varied labour market contexts, arranged employment and childbearing differently. In Germany - where labour market insiders are favoured - women tended to delay family formation and childbearing until they had attained stable and consistent labour market integration. However, women in UK - which is characterised by a flexible labour market - moved to motherhood in part-time employment or unemployment that providerd increased time for parenting.

Michaud and Tatsiramos (2011) found that the effects of fertility on women's employment in Europe differed considerably between countries and that the pattern between fertility and female employment was largely consistent with the labour market flexibility and family policies. For Anglo-Saxon countries, the direct effect of fertility on employment was large but not persistent over time because labour market flexibility reduced the penalty for exiting the labour

market. Meanwhile, the direct effect of fertility on employment was the lowest for the Mediterranean countries among all countries, and the total fertility and female employment rates were also lowest. This evidence suggests that in the absence of a flexible labour market women are divided into two groups: those who forgo employment to give birth and those who do not exit employment once having had a first birth but are less likely to have further births.

3. Summary and discussion

Economic and sociological theories on fertility suggest that very low fertility in advanced societies has been driven by higher child-rearing costs, income/employment insecurity and the gender equity gap between the public and private sphere. If so, family policies will likely increase fertility outcomes with various functions in various ways. Family policies's financial support function could contribute to fertility outcomes by directly offsetting the costs of children for households. Then, family policies' work-family reconciliation function could raise fertility outcomes by encouraging mothers to participate in the labour market and reduce the opportunity costs of childrearing. Moreover, family policies' function of encouraging fathers' participation in childcare and household work could heighten fertility levels by enhancing gender equity in the home.

However, such theoretical hypotheses on how family policies contribute to fertility levels in advanced societies have not yet been substantiated by concrete empirical evidence. The previous research reviewed thus far has shown that cash transfers, subsidies for and the availability of formal childcare services and the benefit and duration of childcare leave positively affect fertility outcomes in general. Nonetheless, because previous studies analysed just one possible path along which family policies' effects may be transmitted to fertility outcomes and totally ignored other plausible paths, we have no knowledge of the entire mechanisms by which family policies may affect fertility outcomes.

Empirical literature reviews on the interrelationship among family policies, female labour market participation, male household labour participation and fertility hints that family policies may increase fertility levels in indirect and/or moderated ways, aside from the direct route. First, previous studies of the association between family policies and women's employment and between women's employment and fertility outcomes have shown that childcare services and leave schemes increase women's employment and the impact of women's employment on childbearing is also positive, even though its strength and direction differ according to institutional contexts. Therefore, based on the empirical evidence, we can suppose that family policies could affect fertility outcomes indirectly through encouraging female

labour market participation and by moderating the correlation between female labour market participation and childbearing intention/behaviour, which, in turn, affects the strength of the indirect effects of family policies on fertility outcomes through female labour market participation.

Another indirect pathway by which family policies may affect fertility outcomes through male household labour participation can be assumed. Empirical analyses on the association between family policies and gender equity in family relations and between the equal division of household labour and childbearing found that childcare-related leave reserved to fathers increased fathers' participation in childcare and household work, and the more equal sharing of family responsibilities between a couple increased the likelihood of their having a subsequent child.

An analysis on the mechanism of family policies for fertility uncovers 'the black box' of previous studies on the impact of family policies on fertility outcomes: how family policies work to address very low fertility levels in advanced societies. In consideration of family policy multidimensionality, the question of how certain family policy schemes affect fertility outcomes has a greater importance than the question of whether. Family policy is not a mere measure but an architect of mixed policy instruments with various functions and policy goals, so different family policy schemes might not only have

a different magnitude and/or direction of effect on fertility outcomes, but also take different pathways to transmit the effects.

Understanding how certain family policy measures affect fertility outcomes is helpful to implement family policies both effectively and correctly. Family policy multidimensionality means that the implementation of family policy measures is always accompanied by both unintended effects and intented ones. A family policy measure can produce a positive outcome for one policy goal but not for others; therfore, the effects of family policies on fertility levels are necessarily judged in a more holistic way. The analysis on the process by which family policies influence fertility outcomes clarify the intertwined link among family policies, women's employment, gender equity and fertility and, in turn, enable us to identify the by-products and effects of family policies on fertility outcomes. Knowledge of the mechanisms of family policies on childbearing intentions/behaviour will enhance our ability to control the implementation of family policies and lead to more intended outcomes with fewer unintended ones.

Finally, empirical analyses on the mechanism of family policies on fertility outcomes contribute to theories about fertility. Economic theories on fertility have been challenged by a recent reversal of the correlation between economic development and fertility and between female labour market participation and fertility. Gender

equity theories on fertility have suffered from a lack of empirical support for the positive relationship between gender equity and fertility. Empirical analysis on the indirect effects of family policies on fertility through women's employment and men's sharing of childcare and household works can adequately explain for the positive association between women's employment and fertility and strongly support for the gender equity hypothesis.

III. Research Framework and Hypothesis

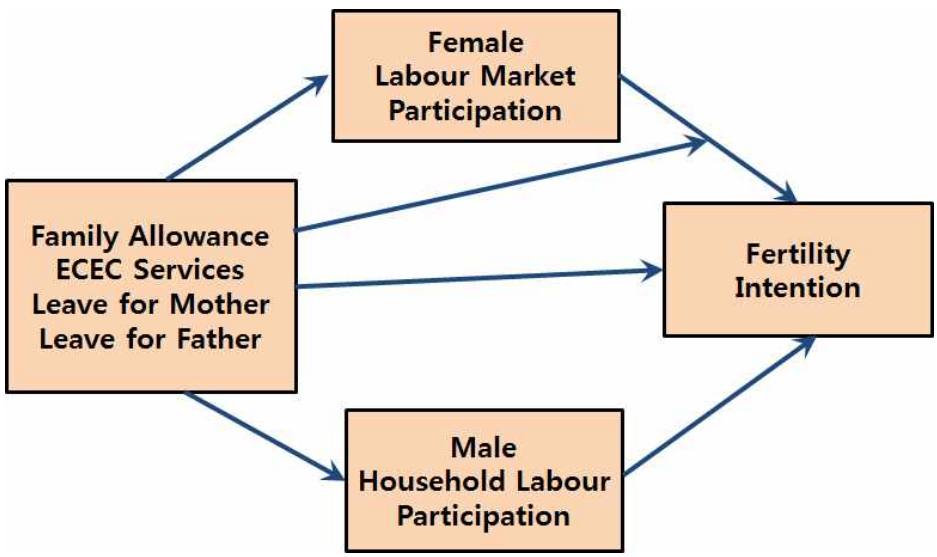


Figure III-1. Conceptual Framework for Family Policy's Mechanisms on Fertility Intentions

The aim of this study is to uncover the mechanisms by which family policies affect fertility intentions in developed countries. Based on a theoretical and empirical literature review, this study identifies four possible pathways for transmitting the effects of family policies on second-birth intentions. The first pathway concerns the direct effects of family policies on second-child intentions. Theoretically, family policies can affect fertility intentions by offsetting the cost of childbearing. Family allowance provides direct financial support to

families with dependent children, and childcare and education services and parental leave schemes reduce parent's opportunity costs of childrearing. This involves a loss of earnings and career prospects due to reduced and interrupted employment and the time cost of taking care of a child and doing household labour. Empirical evidence also consistently confirms the positive effect of financial support on fertility outcomes; therefore, the first hypothesis (based on RQ1) is as follows:

Research Question 1. Do family policies (family allowance, ECEC services, childcare-related leave for the mother and childcare-related leave for the father) affect second-birth intentions directly?

Hypothesis 1-1: Family allowance will affect second-birth intentions directly

Hypothesis 1-2: ECEC services will affect second-birth intentions directly

Hypothesis 1-3: Childcare-related leave for the mother will affect second-birth intentions directly

Hypothesis 1-4: Childcare-related leave for the father will affect second-birth intentions directly

The second pathway concerns the indirect effect of family

policies on second-child intentions through female labour market participation. Women's paid work contributes to the security of their household's economic condition, which can support a (subsequent) child. Empirical evidence indicates that the relationship between women's employment and fertility outcomes at the country-level has changed from negative to positive, and that childcare services and leave schemes encourage women to participate in the labour market, while cash transfers discourage women's labour market participation; therefore, the second hypothesis (based on RQ2) is as follows:

Research Question 2. Do family policies (family allowance, ECEC services, childcare-related leave for the mother and childcare-related leave for the father) have an indirect effect on second-birth intentions through female labour market participation?

Hypothesis 2-1: Family allowance will have a negative indirect effect on second-birth intentions through female labour market participation

Hypothesis 2-2: ECEC services will have a positive indirect effect on second-birth intentions through female labour market participation

Hypothesis 2-3: Childcare-related leave for the mother will have a positive indirect effect on second-birth intentions through female labour market participation

Hypothesis 2-4: Childcare-related leave for the father will have a positive indirect effect on second-birth intentions through female labour market participation

The third pathway concerns the moderation effect of family policies on the relationship between female labour market participation and second-child intentions and, consequently, the indirect effect of family policy on fertility intentions through female labour market participation. That is, the indirect effect of family policy on fertility intention through female labour market participation differs in direction, size, and strength as a family policy's moderating function to the relationship between female labour market participation and fertility intentions. Empirical evidence shows that both childcare services and paid leave schemes have a positive effect on fertility outcomes. It has been argued that such positive effects are driven by their function to enhance women's work-family role compatibility, although this has not been analysed empirically. Therefore, we can suppose that childcare services and leave schemes support the reconciliation of work-family responsibilities, which reverses the correlation between female labour market participation and fertility intentions (from negative to positive), and in turn the indirect effect of family policies on fertility intentions becomes significant. Specifically, the third hypothesis (based on RQ3) is as follows:

Research Question 3. Do family policies (family allowance, ECEC services, childcare-related leave for the mother and childcare-related leave for the father) moderate the relationship between female labour market participation and second-birth intention and, in turn, have a conditional indirect effect on second-birth intentions through female labour market participation?

Hypothesis 3-1: Family allowance will not have a conditional indirect effect on second-birth intentions through female labour market participation; family allowance will insignificantly moderate the relationship between female labour market participation and second-birth intentions and, in turn, the indirect effect of family allowance on second-birth intentions via female labour market participation will not vary according to the moderating effect of family allowance.

Hypothesis 3-2: ECEC services will have a positive conditional indirect effect on second-birth intentions through female labour market participation; ECEC services will positively moderate the relationship between female labour market participation and second-birth intentions and, in turn, the positive indirect effects of ECEC services on second-birth intentions via female labour market participation will be stronger according to the positive moderating effect of ECEC services.

Hypothesis 3-3: Childcare-related leave for the mother will have a positive conditional indirect effect on second-birth intentions through female labour market participation; Childcare-related leave for the mother will positively moderate the relationship between female labour market participation and second-birth intentions and, in turn, the positive indirect effects of childcare-related leave for the mother on second-birth intentions via female labour market participation will be stronger according to the positive moderating effect of childcare-related leave for the mother.

Hypothesis 3-4: Childcare-related leave for the father will have a positive conditional indirect effect on second-birth intentions through female labour market participation; Childcare-related leave for the father will positively moderate the relationship between female labour market participation and second-birth intentions and, in turn, the positive indirect effects of childcare-related leave for the father on second-birth intentions via female labour market participation will be stronger according to the positive moderating effect of childcare-related leave for the father.

The last pathway concerns the indirect effect on second-birth intentions as a result of male household labour participation. The gender equity approach argues that fertility outcomes will increase when gender equity is enhanced in the home. Empirical evidence

shows increased levels of men's participation in childcare and housework increases rates of childbearing and that male household labour participation is increased by leave schemes for the father, not by childcare services. Cash transfers tend to strengthen the male-breadwinner family model; therefore, the final hypothesis (based on RQ4) is as follows:

Research Question 4. Do family policies (family allowance, ECEC services, childcare-related leave for the mother and childcare-related leave for the father) have an indirect effect on second-birth intentions through male household labour participation?

Hypothesis 4-1: Family allowance will have a negative indirect effect on second-birth intentions through male household labour participation

Hypothesis 4-2: ECEC services will have an insignificant indirect effect on second-birth intentions through male household labour participation

Hypothesis 4-3: Childcare-related leave for the mother will have an insignificant indirect effect on second-birth intentions through male household labour participation

Hypothesis 4-4: Childcare-related leave for the father will have a positive indirect effect on second-birth intentions through male household labour participation

IV. Methodology

1. Data and Research Subject

I use individual-level data from Wave 2 and 5 of the European Social Survey (ESS-2 and ESS-5), administered in 2004 and 2010 respectively. ESS is a biennial social survey and consists of a core and rotating module. In ESS-2 and ESS-5, the rotating module was 'family, work and well-being' and included a series of questions on fertility intentions, work experience, work-family conflicts and household activity, which are necessary indicators in this study.

ESS 2 and 5 includes total 32 countries. However, due to a lack of data and non-OECD countries, only 20 countries' data were used in analyses. The 20 countries in the sample are Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, and the United Kingdom, which are heterogeneous with respect to family policy provisions and fertility rates.

The analytical sample of this study is restricted to women in childbearing age (18-45 years old) who have one child. According to previous studies, 'whether a woman is living with a partner or not' is an important predictor for short-term fertility intentions (Balbo et al., 2013; Neyer & Andersen, 2008). Therefore, I restrict my research

sample to women who lived with a male spouse (or partner).

I also use country-level data extracted from the Eurostat Database, the Organization for Economic Co-operation and Development (OECD) Database, the annual review reports published by International Network on Leave Policies and Research (Deven & Moss, 2005; Moss, 2011) and Global Gender Gap Index (World Economic Forum, 2017). Detailed information on variables is described below.

2. Conceptualisation, operationalisation and measurement of variables

2.1 Dependent variable

The dependant variable in this study is 'second-birth intention'. The use of second-birth intention to understand the determinants of fertility is based on prior research. Although the concurrence between fertility intentions and actual births is moderate, the micro- and macro-level predictors of fertility intentions and actual births are largely consistent (Balbo et al., 2013; Harknett et al., 2014; Rindfuss et al., 1988). Hence, fertility intention is considered a reliable indicator of fertility outcomes.

Another reason for specifically analysing 'second-birth intention in this study is that previous studies have shown that the effects of family policies on fertility (intentions) varied according to parity

(Billingsley & Ferrarini, 2014; Billari & Medalia, 2014). Very low fertility levels (with a total fertility rate (TFR) below 1.3) is closely related to a low probability of having a second child, but not the first one (Billari & Kohler, 2004; Kohler et al., 2002;). Therefore, understanding the determinants of second order fertility intentions is crucial to understanding the cross-country variation in fertility, which has sustained over the last few decades in post-industrialised society. For these reasons, this study focuses on the impact of family policy on second-order fertility intentions.

Fertility intentions at the individual level are measured by the question: 'Do you plan to have a child within the next three years?' There are five possible answers to the question: 'definitely not', 'probably not', ' not known/no answer', 'probably yes', and 'definitely yes'. These answers are regarded as interval measures, where the degree of certainty in planning to have a child increases from 'definitely not' to 'definitely yes'.

2.2 Independent variables (and moderators), mediators and covariates

Family Policies

This study focuses on the analysis of family policies in the three most common types of measure developed in welfare states: cash transfers, childcare services and childcare-related leave schemes.

Cash Transfers is assessed by 'public spending on family allowance', measured in % of GDP in 2004 and 2010 (Eurostat Social Spending database). In fact, the most frequently used indicator for cash transfers is the public expenditure on family benefits, which includes family allowance, home-care allowance, parental leave benefits, tax benefits, and cash benefits for lone-parent families. Such various cash transfer schemes respectively have different levels of incentives for couples to participate in the labour market and household works and, hence, the mechanism of cash transfers measured by family benefits regarding fertility is blurred. Therefore, this study chooses to focus on a specific cash transfer scheme. Family allowance, which is the most common cash transfer measure implemented in welfare states, is periodical payments to families with dependent children. Family allowance in values or as a percentage of monthly earnings could be a more exact measurement of cash support levels for individual families, but the availability and comparability of data is quite limited due to substantial variances with the age of children and eligibility according to countries. Therefore, the study employs social expenditure in family allowance.

Childcare Services is accessed by 'public spending on early childhood education and care (ECEC) for children aged 0-5', measured in % of GDP in 2004 and 2010 (OECD Family Databse). Two indicators are often used in a comparative analysis on the effects of

childcare services on fertility: 'public spending on childcare and early education services' and 'the rate of the participation in childcare and pre-school services among children aged 0–2 years'. Public spending on and the availability of childcare services for very young children capture in respect might work for fertility in different ways. Compared with market-centred childcare systems, public systems provide families with better access to and higher quality of childcare and early education services, which positively affects their childbearing decisions (Lloyd et al., 2012). Meanwhile, the widespread availability of childcare services for very young children (aged 0-2 years) allows mothers to return to their workplace quickly and reconcile work and family responsibilities much more easily, which also positively affects their childbearing decisions (Haan et al, 2011). Thus, two indicators might work for fertility in different ways. However, because I want to examine how the *state's support* for childcare services affect fertility intentions, I choosed 'public spending on early childhood education and care (ECEC) for children aged 0-5' as an indicator.

Childcare-related leaves is accessed by two indicators: 'duration of well-paid leave available to mothers' and 'duration of well-paid leave reserved for fathers'. Data is collected from 'International Review of Leave Policies and Related Research' (Deven & Moss, 2005; Moss, 2011). 'International Review of Leave Policies and Related Research' is an annual review report published by

International Network on Leave Policies and Research. This report provides data about duration of unpaid, paid and well-paid maternity, paternity and parental leave and leave to care for sick children. In that report, the 'duration of well-paid leave available to mothers' refers to those leave months that are available to the mother and are paid at a flat-rate of €1000 per month or two-thirds (66%) of earnings at least. The 'duration of well-paid leave reserved to fathers' refers to those leave months that are solely available to the father, such as paternity leave, daddy quota and bonus months, and are paid at a flat-rate of €1000 per month or two-thirds (66%) of earnings at least. Although there have been relatively fewer empirical analysis on the effects of leave schemes on fertility, researchers found that well-paid and sufficiently long (not too long) leave has a positive impact on fertility. Furthermore, if parental leave is well paid and daddy quota are implemented, more fathers tend to take leave and, in turn, to share family responsibilities more equally.

Female labour market participation

The *Woman's working hours* indicator is used to measure female labour market participation. 'Woman's working hours' is measured by total hours normally worked per week in the main job including overtime. Data from ESS2 and ESS5 is used.

Male household labour participation

The indicator of *sharing of household works between partners*

is used to measure of male household labour participation. It is measured by total hours per week the male spouse/partner spends on housework over their female partner (ratio). Housework includes cooking, washing, cleaning, care of clothes, shopping and property maintenance but excludes childcare and leisure activities. Data from ESS2 and ESS5 is used.

Covariates

Individual-level covariates include *women's age and educational attainment, household income and male labour market participation*. A rich body of literature shows that women's late reproduction is a major factor for very low fertility, and that women's educational attainment significantly influences the timing and number of children and labour market trajectories (Balbo et al., 2013). The respondent's *educational attainment* is measured by EDULVLB in ESS2 and EISCED in ESS5. EDULVLB is a more detailed International Standard Classification of Education (ISCE) with 26 codes, which is subdivided using the complementary dimensions provided by ISCED; 'programme orientation', 'programme destination', 'programme duration' and 'order in the national degree and qualification education'. EDULVLB is coded as 5 categories: 1. less than lower secondary education (ISCED 0-1), 2. lower secondary education completed (ISCED 2), 3. upper secondary education completed (ISCED 3), 4. post-secondary non-tertiary education

Table IV-1. Structure of the Global Gender Gap Index

Subindex	Indicator
Economic Participation and Opportunity	Female-to-male ratio for labour force participation
	Wage equality between women and men for similar work
	Female-to-male ratio for estimated earned income
	Female-to-male ratio for legislators, senior officials and managers
	Female Female-to-male ratio for professional and technical workers
Educational Attainment	Female-to-male ratio for literacy rate
	Female-to-male ratio for net primary enrolment rate
	Female-to-male ratio for net secondary enrolment rate
	Female-to-male ratio for gross tertiary enrolment rate
Health and Survival	Sex ratio at birth (converted to female-to-male ratio)
	Female-to-male ratio for healthy life expectancy
Political Empowerment	Female-to-male ratio for with seats in parliament
	Female-to-male ratio for at ministerial level
	Number of years with a female head of state (over the last 50 years) toe the number of years with a male(ratio)

Source: World Economic Forum (2017)

completed (ISCED 4), and 5. tertiary education completed (ISCED 5-6). Otherwise, EISCED is a 7 category variable constructed on the basis of EDULVLB: 1. less than lower secondary, 2. lower secondary, 3. lower tier upper secondary, 4. upper their upper secondary, 5. advanced vocational, sub-degree, 6. lower tertiary education, BA level, and 7. higher tertiary education, >= MA level. The indicator of *household income* is household's total net income, after tax and compulsory deductions from all sources. Household net income is coded by 12 income ranges in ESS2, and by 10 deciles of the actual household income range in the given country in ESS5. *Male labour*

market participation is measured by total hours normally worked per week in the main job including overtime.

Economic recession, labour market structure and *gender equity structure* are included as country-level covariates. The theoretical and empirical literature reviewed thus far has shown that economic conditions, labour market structure and gender structure may affect the link between family policies and fertility. E*conomic recession* is measured by 'unemployment rate', which is the number of people unemployed (15-74 years of age/ 16-74 years in Spain and UK) as a percentage of the labour force that is the total number of people employed and unemployed (Eurostat, 2018). Data from EU-LFS is used. The *labour market structure* is assessed by 'Employment protection legislation', which is an OECD indicator of employment protection which are synthetic indicators of the strictness of regulations on dismissals and the use of temporary contracts. Data ranges 0-6 with higher scores representing stricter regulation (OECD, 2013). The g*ender equity structure* is assessed by the Global Gender Gap Index (GGGI) developed by World Economic Forum (2017). The GGGI measures the gap between men and women in four dimensions: 'Economic participation and opportunity', 'Educational attainment', 'Health and survival', and 'Political empowerment'. The four subindexes are composed of 14 different indicators (see Table IV-1).

3. Analytical method

3.1 Analytical model

This study identifies the mechanism by which family policies can affect fertility through multilevel mediation and moderated mediation analysis. Multilevel analysis' necessity has been emphasised in literature review due to the issue of unobserved heterogeneity of individuals and social contexts (Balbo, 2013; Neyer et al., 2008). However, research on the impact of family policies on fertility has been largely polarised into single- and cross-country analysis that has emphasised either micro or macro determinants but ignored the interrelationship between individual and institutional conditions. There has been few investigation on how macro conditions affect individuals' childbearing decisions or those of particular groups of women. Therefore, the current study employs multilevel analysis.

The current research employs a random intercept model, in which intercepts vary but slopes are fixed across groups. In addition, 2-1-1 multilevel mediation and moderated mediation models[2)] where the effect of a level-2 predictor on a level-1 outcome is mediated by another level-2 predictor are analysed. With respect to centering for level-1 predictors, CWC(M) (centred within the context of the reintroduction of the subtracted means at level-2) suggested by Zhang,

2) The 2-1-1 model mean a model in which the predictor is at level 2 and the mediator and outcome are at level 1.

Zyphur and Preacher (2009) is chose. Zhang and his collegues indicate that when level-1 predictors are grand-mean centred or uncentred, the estimates of indirect effects are composed of within-group and between-group effects, leading to biased or conflated estimations. Their recommendation to solve this problem was using group-mean centring at Level-1 instead of using grand-mean centring and adding group means at Level-2. This study follows their recommendation. When CWC2 is used for centring of level-1 predictors, the indirect and conditional indirect effect can only exist at the cluster level (see Figure IV-1).

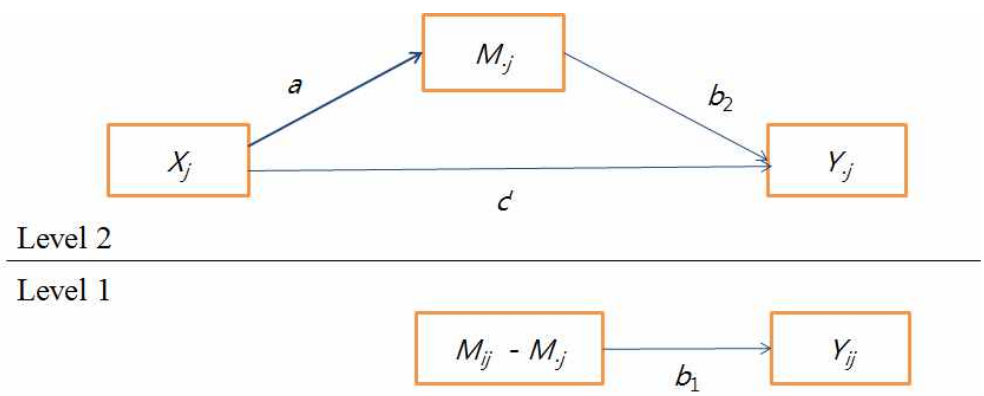


Figure IV-1. 2→1→1 Model's Cluster-Level Mediation

Model 1

First, the multilevel mixed-effect linear regression analysis is carried out to test the direct effects of family policies on second-birth

intentions (Research Question 1). The multilevel analysis is designed as the model where a level-2 independent variable (family allowance, ECEC services, childcare-related leave for the mother and childcare-related leave for the father: FP) is hypothesised to impact a level-1 outcome (second-birth intentions: SI). In Model 1, the effects of family policy on fertility are estimated in the condition controlled by women's age (AGE), educational level (EDC) and working hours per week (FLMP), male partner's times weekly spent in paid work (MLMP) and household works (MHLP) and household net income (HINC) as level-1 covariates, and economic recession (UEP), labour market rigidity (EPL) and the level of gender equity in society (GGGI) as level-2 covariates. The lower level equations are specified as

(Level 1)

$$SI_{ij} = \beta'_{0j} + \beta'_{1j}(AGE_{ij} - AGE_{\cdot j}) + \beta'_{2j}(EDC_{ij} - EDC_{\cdot j}) + \beta'_{3j}(FLMP_{ij} - FLMP_{\cdot j}) + \beta'_{4j}(MLMP_{ij} - MLMP_{\cdot j}) + \beta'_{5j}(MHLP_{ij} - MHLP_{\cdot j}) + \beta'_{6j}(HINC_{ij} - HINC_{\cdot j}) + r'_{ij}$$

where the subscript i, j, and $\cdot j$ reference an individual (women), a group (country) and the observed group means of variables, respectively. The error term r'_{ij} captures the deviation of the individual score around the group mean and β'_{0j} represents the group

mean for 'second-birth intentions (SI)'. β'_{0j} is specified in the upper-level equations as follows.

(Level 2)

$$\beta'_{0j} = \gamma'_{00} + \gamma'_{01}FP + \gamma'_{02}UEP_j + \gamma'_{03}EPL_j + \gamma'_{04}GGGI_j + \gamma'_{05}AGE_j + \gamma'_{06}EDC_j + \gamma'_{07F}LMP_j + \gamma'_{08}MLMP_j + \gamma'_{9}MHLP_j + \gamma'_{10}HINC_j + u'_{0j}$$

Model 2

The first multilevel mediation model is then analysed to examine the indirect effects of family policies on fertility through female labour force participation (Research Question 2). The multilevel mediation is designed as the 2-1-1 one where one level-2 independent variable (family allowance, ECEC services, childcare-related leave for the mother and childcare-related leave for the father: FP) is hypothesised to impact on one level-1 outcome (second-birth intentions: SI) via one level-1 mediator (female labour force participation: FLFP). The covariates included in the multilevel mediation model are identical to the multilevel model presented above. The lower level equations are specified as

(Level 1)

$$FLFP_{ij} = \beta_{w0j} + r_{wij}$$

$$SI_{ij} = \beta'_{0j} + \beta'_{1j}(AGE_{ij} - AGE_{\cdot j}) + \beta'_{2j}(EDC_{ij} - EDC_{\cdot j})$$
$$+ \beta'_{3j}(FLMP_{ij} - FLMP_{\cdot j}) + \beta'_{4j}(MLMP_{ij} - MLMP_{\cdot j})$$
$$+ \beta'_{5j}(MHLP_{ij} - MHLP_{\cdot j}) + \beta'_{6j}(HINC_{ij} - HINC_{\cdot j}) + r'_{ij}$$

where β_{w0j} represents the group mean for the mediators 'female labour force participation (FLMP)' and β'_{0j} represents the group mean for 'second-birth intentions (FI)'. β_{w0j} and β'_{0j} are specified in the upper level equations as follows.

(Level 2)

$$\beta_{w0j} = \gamma_{w00} + \gamma_{w01}FP_j + u_{w0j}$$
$$\beta'_{0j} = \gamma'_{00} + \gamma'_{01}FP_j + \gamma'_{02}FLMP_{\cdot j} + \gamma'_{03}UEP_j + \gamma'_{04}EPL_j$$
$$+ \gamma'_{05}GGGI_j + \gamma'_{06}AGE_{\cdot j} + \gamma'_{07}EDC_{\cdot j} + \gamma'_{08}MLMP_j$$
$$+ \gamma'_{09}MHLP_j + \gamma'_{10}HINC_j + u'_{0j}$$
$$\beta'_{1j} = \gamma'_{10} + u'_{1j}$$

where γ'_{10} represents the impact of the individual-level mediators 'female labour force participation' on the outcome and γ'_{02} represents the impact of the cluster-level mediator, 'female labour force participation', on the outcome.

Model 3

The 2-1-1 multilevel moderated mediation model is analysed

for Research Question 3, regarding family policies' moderation effects on the indirect effects of family policies on fertility through female labour force participation. In this model, a level-2 independent variable (family allowance, ECEC services, childcare-related leave for the mother and childcare-related leave for the father: FP) is hypothesised to moderate the association between a level-1 mediator 'female labour force participation (FLMP)' and a level-1 outcome (second-birth intentions: SI), while also impacting the outcome through a level-1 mediators (female labour force participation: FLMP). The multilevel moderated mediation model has the same Level-1 equations as the multilevel mediation model, namely

(Level 1)

$$FLMP_{ij} = \beta_{w0j} + r_{wij}$$

$$SI_{ij} = \beta'_{0j} + \beta'_{1j}(FLMP_{ij} - FLMP_{\cdot j}) + \beta'_{2j}(AGE_{ij} - AGE_{\cdot j})$$
$$+ \beta'_{3j}(EDC_{ij} - EDC_{\cdot j}) + \beta'_{4j}(HINC_{ij} - HINC_{\cdot j})$$
$$+ \beta'_{5j}(MLMP_{ij} - MLMP_{\cdot j}) + \beta'_{6j}(MHLP_{ij} - MHLP_{\cdot j}) + r'_{ij}$$

The Level-2 equations are specified as

(Level 2)

$$\beta_{w0j} = \gamma_{w00} + \gamma_{w01}FP_j + u_{w0j}$$

$$\beta'_{0j} = \gamma'_{00} + \gamma'_{01}FP_j + \gamma'_{02}FLMP_{\cdot j} + \gamma'_{03}FLMP_{\cdot j}FP_j$$

$$+ \gamma'_{05}AGE_{\cdot j} + \gamma'_{07}EDC_{\cdot j} + \gamma'_{08}MLMP_j + \gamma'_{09}MHLP_j + \gamma'_{10}UEP_j$$
$$+ \gamma'_{11}EPL_j + \gamma'_{12}GGGI_j + u'_{0j}$$
$$\beta'_{1j} = \gamma'_{10} + \gamma_{11}FP_j + u'_{1j}$$
$$\beta'_{2j} = \gamma'_{20} + u'_{2j}$$

Where a level-2 variable 'family policies (FP)' moderates both the between-group effect of a level-1 mediator 'female labour force participation (FLMP)' on 'second-birth intentions (SI)'. The between-group effect of 'female labour force participation (FLMP)' on 'second-birth intentions (SI)', controlling for 'family policies (FP)' is $\gamma'_{02} + \gamma'_{03}FP_j$.

Model 4

Finally, the multilevel multiple-mediation model is analysed to examine Research Question 4, representing the indirect effects of family policies on fertility through male household labour participation. The multilevel mediation is designed as the 2-1-1 model with one level-2 independent variable (family allowance, ECEC services, childcare-related leave for the mother and childcare-related leave for the father: FP), two level-1 mediators (female labour force participation: FLMP, and male household labour participation: MHLP) and one level-1 outcome (second-birth intentions: SI). The lower level equations are specified as

(Level 1)

$$FLMP_{ij} = \beta_{w0j} + r_{wij}$$

$$MHLP_{ij} = \beta_{m0j} + r_{mij}$$

$$SI_{ij} = \beta'_{0j} + \beta'_{1j}(FLMP_{ij} - FLMP_{\cdot j}) + \beta'_{2j}(AGE_{ij} - AGE_{\cdot j})$$

$$+ \beta'_{3j}(EDC_{ij} - EDC_{\cdot j}) + \beta'_{4j}(HINC_{ij} - HINC_{\cdot j})$$

$$+ \beta'_{5j}(MLMP_{ij} - MLMP_{\cdot j}) + \beta'_{6j}(MHLP_{ij} - MHLP_{\cdot j}) + r'_{ij}$$

where β_{m0j} represents the group mean for the mediator 'male household labour participation (MHLP)'. β_{m0j} is specified in the upper level equations as follows.

(Level 2)

$$\beta_{w0j} = \gamma_{w00} + \gamma_{w01}FP_j + u_{w0j}$$

$$\beta_{m0j} = \gamma_{m00} + \gamma_{m01}FP_j + u_{m0j}$$

$$\beta'_{0j} = \gamma'_{00} + \gamma'_{01}FP_j + \gamma'_{02}FLMP_{\cdot j} + \gamma'_{03}FLMP_{\cdot j}FP_j$$

$$+ \gamma'_{05}AGE_{\cdot j} + \gamma'_{07}EDC_{\cdot j} + \gamma'_{08}MLMP_j + \gamma'_{09}MHLP_j + \gamma'_{10}UEP_j$$

$$+ \gamma'_{11}EPL_j + \gamma'_{12}GGGI_j + u'_{0j}$$

$$\beta'_{1j} = \gamma'_{10} + u'_{1j}$$

$$\beta'_{2j} = \gamma'_{20} + u'_{2j}$$

where γ'_{10} and γ'_{20} respectively represent the impact of the individual-level mediators, 'female labour force participation (FLMP)'

and 'male household labour participation (MHLP)' on the outcome. γ''_{02} and γ'_{09} respectively refer to the impact of the cluster-level mediators 'female labour force participation (FLMP)' and 'male household labour participation (MHLP)' on the outcome.

3.2 Estimation

Multilevel mediation and moderated mediation analyses are undertaken with ordinary least squares regression-based path analysis using the MPLUS 8.0. There are two ways to assess multilevel moderated mediation effects: ordinary least squares regression-based path analysis (MLM) and maximum likelihood-based structural equation modelling (MSEM). MSEM has greater flexibility for formulating multilevel mediation processes and handling missing data than MLM and can reduce random measurement errors, which MLM cannot. However, MLM is also appropriate and its estimates remains unbiased, at least in certain circumstances: when independent variables are measured reliably, just observed variables are involved in the model, no 'upward effects' exist, the group sample sizes are sufficiently large enough and the intraclass correlation is high enough (Hayes et al., 2017; Hayes, 2018; Rockwood, 2017).

Maximum likelihood parameter estimates with standard errors and a chi-square test statistic (MLR) is used for estimation. The MLR is a recommended option for when non-normality and

non-independence of observations exist in MPLUS (Muthén & Muthén, 2017).

Then, the Monte Carlo method (MC) is used for hypothesis tests about mediation and moderated mediation effects[3]. The MC method generates a sampling distribution of a complex statistic by using its point estimates, asymptotic variances of these estimates, and the assumption about a joint normal sampling distribution of component statistics. The advantages of the MC method are that it does not require the normal distribution assumption, can be used in small samples and is very fast, even faster than bootstrapping (Preacher & Selig, 2012; Rockwood, 2018). Therefore, the MC method is useful for multilevel conditional medication models that involve complex and intensive numerical integration for estimating parameters and in which the indirect and conditional indirect estimates are more likely not to follow a normal distribution. *RMediation* pakage (Tofigi & Mackinnon, 2011) was used to obtain a MC confidence interval for the indirect and conditional indirect effect.

3) In the result tables, the asymptotic normal theory and the Monte Carlo method CIs both are presented. However, research results are reported and interpreted on the basis of the Monte Carlo method CIs.

V. Research Results

1. Description of data

The sample size of women studied was 2611. The number of women with one child was 1378 in 2004 and 1233 in 2010. Thus, sample sizes were larger in 2004 than in 2010. As shown in Table V-1, the overall sample was distributed unevenly across 20 countries included in the study. Czech Republic, Germany, and Greece had

Table V-1. Sample Sizes

	2004	2010	Total
Belgium	61	63	124
Switzerland	78	33	113
Czech Republic	93	95	188
Germany	115	72	187
Denmark	52	37	89
Estonia	77	81	158
Spain	59	60	119
Finland	58	47	105
France	63	50	113
U.K.	67	67	134
Greece	103	121	224
Hungary	49	75	124
Ireland	41	63	104
Netherlands	63	57	120
Norway	61	39	110
Poland	78	67	145
Portugal	110	70	180
Sweden	52	31	83
Slovenia	46	39	75

relatively large samples of approximately 200, while Denmark, Sweden, Slovenia, and Slovakia were represented by less than 100 women. The sample size of each analytical unit also varied from 31 (Sweden in 2010) to 121 (Greece in 2010).

Table V-2 shows first- and second-child intentions in all 20 countries. Individuals in all 20 countries expressed slightly stronger intentions of having a child in 2010 than in 2004.[4] The overall averages for fertility intentions in all 20 countries for 2004 and 2010 were 2.32 and 2.48, respectively. Meanwhile, the overall average of TFR in all 20 countries was higher in 2007 (1.61) than in 2013 (1.57), suggesting that individuals had greater difficulties realising their fertility intentions in 2010 than in 2004 under the influence of the Great Recession, regardless of their enhanced fertility intentions.

Comparing overall fertility intention levels by country between 2004 and 2010, Scandinavian countries, France, and the Netherlands (which had high levels of fertility rates) consistently showed high levels of fertility intention in both 2004 and 2010. However, unexpectedly, Spain, Greece, Poland, and Switzerland (with low fertility rates) also showed relatively higher levels of fertility intentions in both 2004 and 2010 both. Therefore, we can expect that

4) Although the dependent variable of this study is 'second-birth intentions', descriptions on first- and second-birth intentions both were presented here in order to highlight differences in parity-specific fertility intentions and, in turn, deepen our knowledge on and understanding of the features of second-birth intentions,

Table V-2. Fertility Intentions in 2004 and 2010

	2004				2010		
	Parity 0	Parity1	TFR[a]		Parity 0	Parity 1	TFR[b]
Estonia	3.14	2.18	1.69	France	3.12	2.24	1.97
Greece	3.14	2.29	1.41	Belgium	3.00	1.98	1.74
Hungary	2.97	1.72	1.32	Greece	2.93	2.22	1.29
France	2.94	2.48	1.95	Poland	2.88	2.38	1.26
Poland	2.83	2.16	1.31	Portugal	2.85	1.99	1.21
Spain	2.75	2.20	1.38	Hungary	2.81	2.06	1.34
Portugal	2.72	1.90	1.35	Spain	2.81	1.95	1.27
Denmark	2.56	2.38	1.84	Estonia	2.79	2.17	1.52
Netherlands	2.54	2.40	1.72	Norway	2.72	2.61	1.78
Norway	2.54	2.68	1.90	Czech Rep.	2.72	2.37	1.46
Sweden	2.47	2.54	1.88	Slovakia	2.68	2.49	1.34
Finland	2.46	2.60	1.83	Sweden	2.65	2.53	1.89
U.K.	2.45	2.03	1.86	Swiss	2.65	2.62	1.52
Czech Rep.	2.37	2.05	1.44	Denmark	2.64	2.77	1.67
Slovenia	2.36	2.05	1.38	Slovenia	2.63	2.23	1.55
Swiss	2.31	2.56	1.46	Netherlands	2.59	2.36	1.68
Ireland	2.30	2.79	2.03	U.K.	2.54	2.61	1.83
Belgium	2.28	2.07	1.80	Ireland	2.42	2.16	1.96
Slovakia	2.22	2.19	1.25	Germany	2.40	1.96	1.42
Germany	2.09	1.75	1.37	Finland	2.33	2.65	1.75
Average	2.57	2.25	1.61	Average	2.71	2.32	1.57

Note: TFR[a] = Total fertility rate in 2007, TFR[b] = Total fertility rate in 20013

the gap between intended and realised fertility is significantly larger in the latter countries than the former.

Next, the issue of how were high fertility intentions resulted in low fertility outcomes in Spain, Greece, Poland, and Switzerland

was addressed. For this question, descriptions and comparisons of parity-specific fertility intentions provided approximate answers.

In general, intentions of having a first child were stronger than for having a second child in all 20 countries. The overall means for childbearing intentions of women with no children and for those with one child were , 2.54 and 2.13 in 2004, and 2.7 and 2.24 in 2010, respectively. In most countries, women showed stronger intentions to have their first child than their second. Those countries where intentions of having the second child were higher than for the first child were Norway, Sweden, Finland, Ireland, and Switzerland in 2004, and Denmark, Finland, and the United Kingdom in 2010. That is, generally speaking, individuals in post-industrialised societies are seemingly more reluctant to have more than one child, which would appear to result in fertility rates being below the required replacement fertility rate.

Individuals in certain countries have significantly lower levels of second-birth intentions compared with first-birth intentions, such as southern and some central and eastern European countries. Examining countries according to their respective levels of fertility intentions, interesting patterns emerge (see Figures V-1 and V-2). In 2004, countries that demonstrated above-average levels of intention for the first child were Spain, Portugal, Greece, Estonia, Hungary, Poland, and France. Scandinavian countries with high fertility rates were

Figure V-1 First- and Second-birth Intentions in 2004

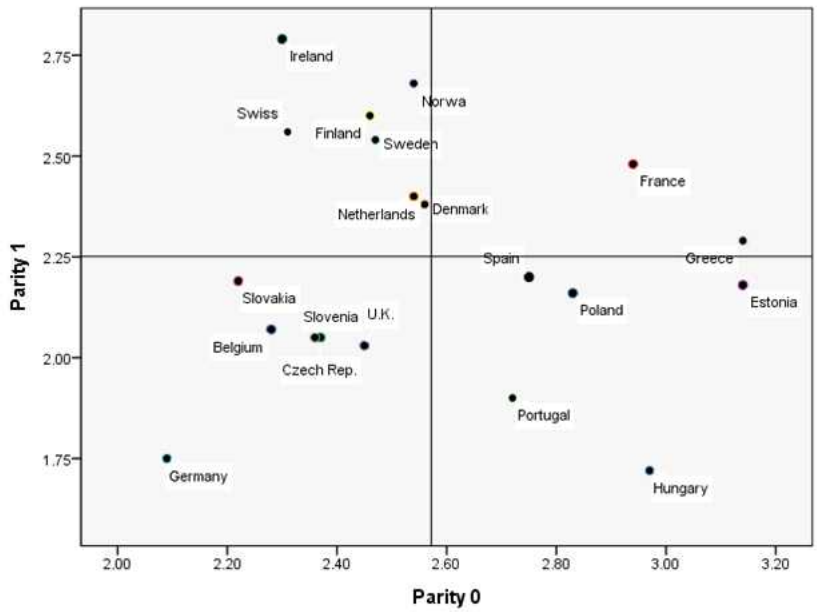
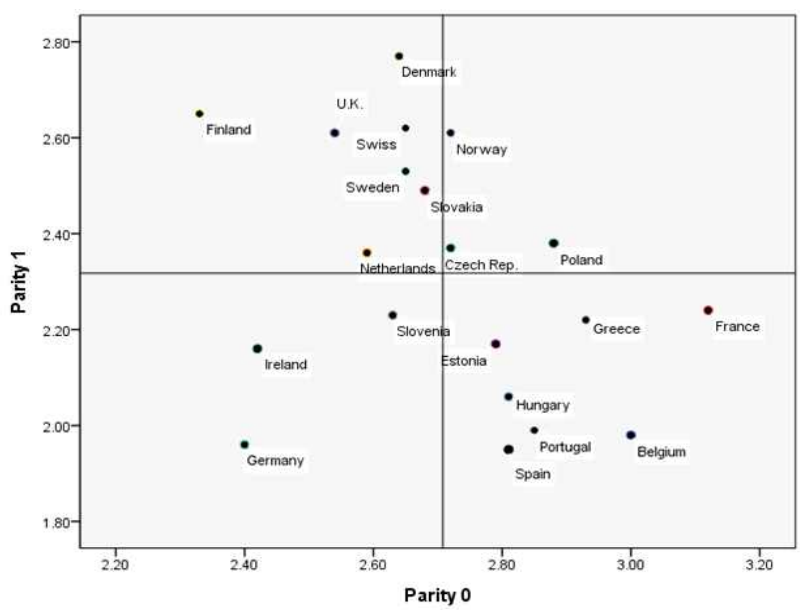


Figure V-2 First- and Second-birth intentions in 2010



placed just below the average level of first-birth intentions, then, English-speaking, western and the rest of the central and eastern European countries followed. Meanwhile, the results for countries with high levels of second-birth intentions were significantly different. Countries with above-average fertility intentions for women with one child were Scandinavian countries, Ireland, France, Netherlands, Switzerland, and Greece. Southern, and Central, and Eastern European countries showed low fertility intentions for women with one child below the average. Similar patterns were repeated in 2010.

Thus, Southern, Central and Eastern European and Scandinavian countries had significantly different patterns with respect to parity-specific fertility intentions. Southern and Central and Eastern European countries showed higher levels of first-birth intentions than Scandinavian countries, but had significantly low levels of second-birth intentions. Conversely, Scandinavian countries with relatively lower levels of first-birth intentions compared with Southern and some of Central and Eastern European countries had rather high levels of second-birth intentions.

To explain the differences in parity-specific fertility intentions between Southern/ Central and Eastern European and Scandinavian countries is beyond the scope of this study. However, social norms regarding having a child could be a probable explanation. On the one hand, it seems that childless women in Southern, Central and Eastern

European countries are put under much higher social pressure to have a child than women in Scandinavian countries. A tradition of large families in Southern, Central and Eastern European countries and a strong social norm against childlessness that developed under socialism in Central and Eastern European countries might be the reason for high levels of first-birth intentions (Beaujouna & Berghammer, 2019). On the other hand, in Southern and Central and Eastern European countries, women having a child have experienced difficulties reconciling work and family roles due to low levels of gender equity within families and a lack of family policies, while economic insecurity has increased. In this context, women would be more likely to choose to have one child rather than two or more, and this is supported by the results in this study, where the levels of second-birth intentions substantially diminish.

To sum up, high levels of fertility intentions were found not only in countries with high fertility rates (such as the Scandinavian countries), but also countries with very low fertility rates, such as Southern, Central, and Eastern European countries. In particular, with respect to first-birth intentions, Southern and some of Central and Eastern European countries were ranked first for first-birth intentions while ranking lower for subsequent-child intentions. Such a pattern of parity-specific fertility intentions in Southern, Central and Eastern European countries reflects strong social pressure to have a child, and

considerable difficulties in raising children due to a lack of family policies. From the descriptions of fertility intentions in all 20 countries, we can infer that the direction and magnitude of family policy effects on fertility intentions can be significantly different according to parity. It seems that first-birth intention is more importantly influenced by social norms and attitudes toward having a child than economic and family policy contexts, while subsequent-child intentions would be more significantly affected by the latter factors.

Tables V-3 and V-4 present descriptive statistics for individual-level variables. The average age of women with one child across all countries was almost identical in 2004 and 2010, at 34.1 and 34.2 years, respectively. However, looking at changes in the age of women with one child between 2004 and 2010 by country, the average age had increased a little by 2010 compared with 2004 in most countries. However in Finland, the United Kingdom, Ireland, Hungary, and Portugal the average age of women with one child was less in 2010 compared with 2004. From these figures, we can infer that individuals tended to delay having their second child further in the context of unstable and unfavourable economic conditions.

On average, respondents in all 20 countries had completed upper-secondary education (see Table V-3). Scandinavian countries

Table V-3. Individual Characteristics I

Country	Age		Educational Attainment		Household Total Net Income	
	2004	2010	2004	2010	2004	2010
Belgium	33.8	36.2	3.38	4.71	6.86	6.58
Switzerland	34.3	34.8	3.21	4.50	9.20	5.88
Czech Rep.	33.6	35.1	3.12	4.03	4.48	6.71
Germany	35.8	34.3	3.33	4.25	7.28	6.78
Denmark	34.7	34.6	3.94	4.22	8.86	7.15
Estonia	32.7	33.3	3.82	4.81	-	6.65
Spain	34.4	36.1	3.05	3.54	6.74	5.90
Finland	34.3	32.4	3.84	4.78	7.52	6.66
France	32.6	35.2	3.45	4.09	7.31	5.94
U.K.	35.0	33.0	2.63	4.68	7.72	6.33
Greece	35.0	34.7	3.16	4.02	5.35	4.68
Hungary	36.0	35.3	3.65	4.09	4.95	5.62
Ireland	34.0	33.1	3.72	4.59	8.03	4.60
Netherlands	33.3	35.0	3.44	4.06	7.50	7.43
Norway	32.9	34.0	3.91	5.46	9.31	6.55
Poland	31.2	31.0	3.63	4.62	3.48	5.61
Portugal	35.0	34.2	2.19	2.81	4.87	-
Sweden	33.5	35.7	3.56	4.63	7.89	6.69
Slovenia	35.0	36.3	3.62	4.58	5.05	5.92
Slovakia	31.4	32.2	3.03	4.37	3.32	6.50
Total	34.1	34.2	3.22	4.21	6.64	6.19

demonstrated relatively high levels of women's educational attainment compared with lower levels for southern European countries. In 2004, Norway, Denmark, Estonia, Finland, and Ireland appeared at the top of women's educational attainment rankings, while Portugal, the United Kingdom, Slovakia, Spain, and the Czech Republic were placed at the lower end. Meanwhile, in 2010, Norway, Estonia, Finland, Belgium, and the United Kingdom ranked highly for educational attainment levels, while Portugal, Spain, Greece, the Czech Republic, and France revealed lower levels.

With regard to household income levels, the figures in 2004 and 2010 show relative levels of household net income across all 20 countries (see Table V-3). In 2004, Scandinavian countries were at the top of income rankings, followed by Western, Southern and Central/ Eastern European countries. Meanwhile, in 2010 the average household net income for respondents across countries was 6.19 and varied from 4.60 (Ireland) to 7.43 (the Netherlands).

Women's working hours significantly varied between countries (see Table V-4). On average, women worked relatively long hours (over 40 hours a week) in Central and Eastern European countries, while women in Switzerland, Germany, the United Kingdom, Ireland, and the Netherlands worked approximately 30 hours a week, suggesting that most women worked on a part-time basis. Central and Eastern European countries were ranked top for women's working

Table V-4. Individual Characteristics II

Country	Female Labour Market Participation (hour)		Male Household Labour Participation		Male Labour Market Participation (hour)	
	2004	2010	2004	2010	2004	2010
Belgium	30.3	34.2	0.62	0.64	32.9	37.8
Switzerland	29.0	31.1	0.49	0.55	40.9	40.9
Czech Rep.	41.7	42.3	0.60	0.36	43.4	43.4
Germany	29.5	32.1	0.58	0.46	34.7	39.0
Denmark	36.6	33.4	0.72	0.62	37.4	40.4
Estonia	41.1	38.9	0.53	0.55	38.8	39.7
Spain	34.6	34.7	0.59	0.47	39.3	36.3
Finland	38.2	35.5	0.58	0.56	39.2	40.1
France	34.7	33.9	0.58	0.67	39.2	37.0
U.K.	28.0	29.7	0.64	0.44	37.5	34.6
Greece	36.5	31.6	0.33	0.32	43.7	38.6
Hungary	43.3	37.1	0.58	0.46	38.5	39.9
Ireland	30.0	28.6	0.56	0.53	42.6	36.4
Netherlands	26.4	27.7	0.55	0.52	42.7	39.5
Norway	33.6	35.8	0.67	0.66	38.2	36.2
Poland	38.9	34.9	0.51	0.44	39.7	43.8
Portugal	35.7	40.4	0.43	0.19	41.4	35.7
Sweden	37.7	34.7	0.73	0.64	39.3	39.1
Slovenia	45.6	42.7	0.58	0.50	42.2	39.7
Slovakia	39.7	42.5	0.67	0.50	40.1	44.2

hours, followed by Scandinavian, Southern and Western European countries. While the average weekly working hours of women with one child across countries changed little between 2004 and 2010 (33.2 hours in 2004 and 33.8 in 2010), two patterns emerged regarding changes in women's working hours between 2004 and 2010. Under the influence of the Great Recession, working hours for women with one child increased in countries that had relatively long working hours, but decreased in countries where women with one child mostly worked part-time.

Average weekly working hours for men with one child across countries did not change significantly between 2004 and 2010 (38.4 hours in 2004 and 38.5 hours in 2010), as shown in Table V-4. Central and Eastern European countries had the longest working hours for men, followed by Southern European, Scandinavian, and Western European countries. However, the variance in men's working hours across all countries was much smaller than for women's working hours, with men worked longer hours than women overall. The gap between men's and women's working hours was small in Central and Eastern European countries, where both fathers and mothers worked approximately 40 hours a week. However, the gender gap was significant in Switzerland, the United Kingdom, Ireland, and the Netherlands, implying that one-and-a-half earner households prevailed in practice.

Men's household labour participation had between 2004 and 2010 (see Table V-4). Men spent 35% less time on housework than their female partners in 2004, and 36% less time in 2010. Scandinavian countries occupied the top places for men's housework participation, whilst Greece, Portugal, Hungary, Poland, and the Czech Republic were placed lowest for men's housework participation. It can be inferred that regardless of women's long working hours, low levels of men's participation in housework in Southern and Central and Eastern European countries magnified the difficulties experienced by women with regard to work-family role reconciliation.

Tables V-5 and V-6 present descriptive statistics for country-level variables. First, Table V-5 shows state-level support for family allowance, ECEC services, childcare-related leave for the mother, and childcare-related leave for the father. Next, Table V-6 displays the levels of gender equity, labour market rigidity, and unemployment in all 20 countries for both 2004 and 2010.

First, the levels of public spending on family allowance for families varied between countries. While Germany, Belgium, Ireland, and the United Kingdom were relatively big spenders on family allowance for families with children, Spain, Greece, and Poland spent comparatively less. Most countries did not make significant changes to the amount of cash benefits for families with children from 2004 to 2010. The average levels of social expenditure on family allowance

Table V-5. Country-Level Indicators I

Country	Family Allowance (%)		ECEC Services (%)		Leave for the Mother (week)		Leave for the Father (week)	
	2004	2010	2004	2010	2004	2010	2004	2010
Belgium	1.5	1.5	0.61	0.67	15.00	15.0	1.40	1.40
Switzerland	1.1	1.0	-	-	0.00	14.00	0.00	0.00
Czech Rep.	0.4	0.8	0.30	0.39	0.00	0.00	0.00	0.00
Germany	2.0	1.8	0.37	0.46	14.00	66.20	0.00	8.70
Denmark	1.0	1.0	1.33	1.25	50.00	50.00	2.00	2.00
Estonia	0.7	0.5	0.23	0.34	65.00	65.00	0.00	0.00
Spain	0.2	0.2	0.41	0.55	16.00	16.00	0.28	2.10
Finland	0.9	0.8	0.88	1.03	43.80	43.50	5.00	7.00
France	1.2	1.1	1.22	1.19	16.00	16.00	2.00	2.00
U.K.	1.4	2.0	0.80	0.78	0.00	33.00	0.00	0.00
Greece	0.3	0.4	-	-	17.00	17.00	0.28	0.28
Hungary	1.1	1.4	0.67	0.65	108.40	108.40	0.00	0.70
Ireland	1.8	2.1	0.28	0.48	0.00	26.00	0.00	0.00
Netherlands	0.6	0.7	0.40	0.84	16.00	16.00	0.28	0.28
Norway	0.8	0.6	0.75	1.21	39.00	46.00	6.00	12.00
Poland	0.5	0.3	0.28	0.48	16.00	22.00	0.00	1.00
Portugal	0.5	0.6	0.37	0.39	16.80	21.00	2.80	5.60
Sweden	0.7	0.7	1.18	1.49	47.60	47.60	9.80	9.80
Slovenia	0.8	0.8	0.53	0.49	52.00	15.00	2.10	2.10
Slovakia	1.0	0.9	0.40	0.41	0.00	0.00	0.00	0.00
Total	0.93	0.96	0.61	0.73	27.19	31.89	1.60	2.75

among all 20 countries increased slightly from 0.93% to 0.96% of GDP. However, the Czech Republic doubled their public spending on cash transfers for families with children (from 0.4% to 0.8%), and the United Kingdom and Ireland increased their spending by 43% (from 1.4% to 2.0%) and 27% (from 1.8% to 2.1%), respectively. In contrast, Poland, Estonia, and Norway decreased their cash benefits for families with children by 40%, 29% and 25%, respectively.

Countries generally spent less on ECEC services than family allowance for families with children (see Table V-5). The average levels of social expenditure on ECEC services in all 20 countries were 0.61% of GDP in 2004 and 0.73% of GDP in 2010. Countries where the levels of public spending on ECEC services were higher than family allowance spending were the Scandinavian countries (Sweden, Norway, Finland, and Denmark) and France, which were also the top five spenders on family allowance among all 20 countries. In most countries, the levels of social support for ECEC services were raised between 2004 and 2010. In particular, the Netherlands, Norway, and Poland showed noticeable growth in social expenditure on ECEC services, at 110%, 61%, and 71%, respectively.

Considerable variations existed between the 20 countries in terms of social support for childcare-related leave for mothers (see Table V-5). The duration of well-paid leave for the mother ranged from 0 weeks in the Czech Republic to 108.4 weeks in Hungary. In

general, Northern European countries (including Estonia) provided more generous childcare-related leave for the mother than Western, Southern, Central and Eastern European countries (except Hungary). The average duration of well-paid leave for the mother was significantly extended from 27.19 weeks in 2004 to 31.89 weeks in 2010. In particular, there were dramatic increases in the periods of well-paid leave for the mother in Germany, Switzerland, the United Kingdom, and Ireland. Slovenia was the only country that reduced the number of weeks of well-paid leave for mothers.

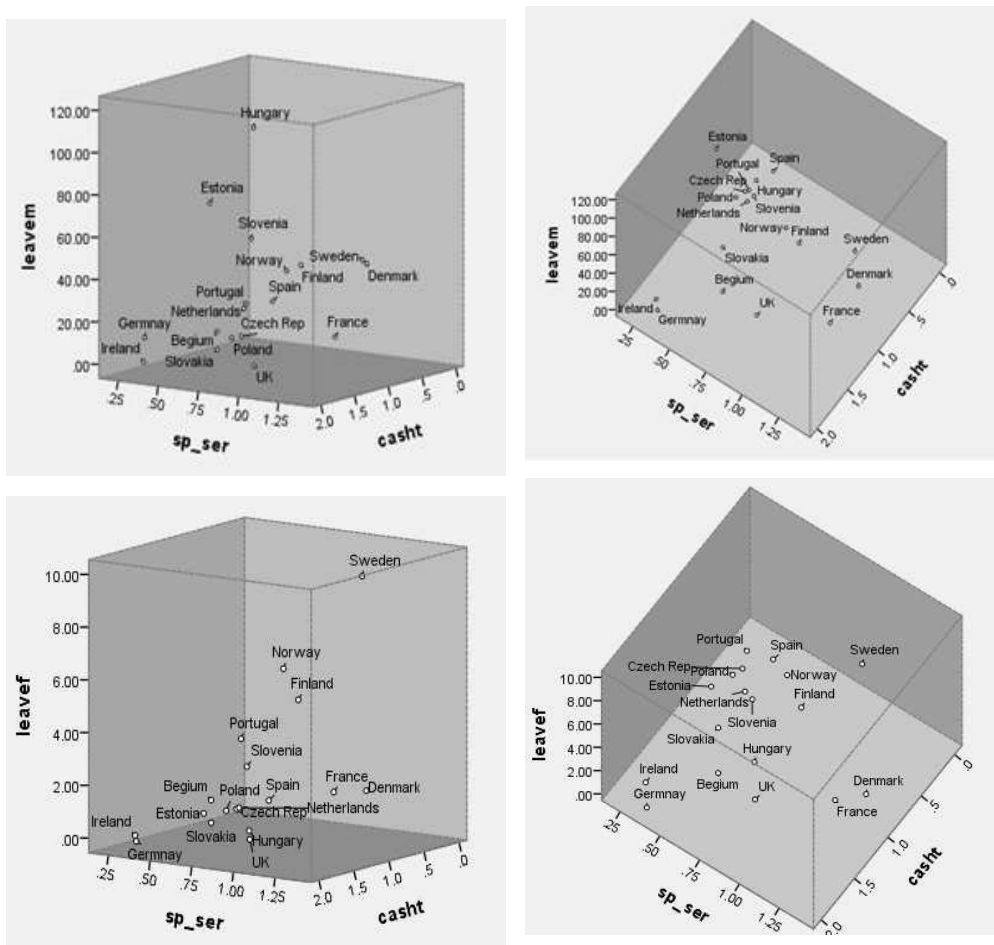
The duration of well-paid leave for fathers was much shorter than that available to mothers (see Table V-5). The average period of fathers' leave for all 20 countries was 1.60 weeks in 2004 and 2.75 weeks in 2010. Scandinavian countries and Germany (in 2010) provided generous leave schemes to both fathers and mothers, demonstrating their intentions to stimulate fathers' participation in childcare. Interestingly, those countries with generous leave for mothers did not always offer generous leave for fathers. For instance, Estonia and Hungary provided more than 50 weeks of well-paid leave to mothers but had no paternity leave and/or 'daddy quota' schemes. By contrast, Portugal had a relatively short duration of well-paid leave for mothers (21 weeks in 2010) compared with the average maternal leave for the all 20 countries overall (31.89 weeks in 2010); however, they offered quite a lengthy period of well-paid leave for the father

(5.60 weeks in 2010). Switzerland, the Czech Republic, Estonia, the United Kingdom, Ireland, and Slovenia had no paternity leave and/or paternal quota schemes.

Next, I examined the mix of family policy provisions (see Figures V-3 and Figure V-4). It is a common view that Scandinavian countries provide substantial support for families with children across all three types of family policy areas (cash benefits, services, and leave), Western European countries provide generous cash benefits to families, but less for childcare services and leave schemes, whilst Southern, Central and Eastern European countries are reluctant to support families across all areas of family policy. However, Figures V-3 and V-4 illustrate that it is hard to group –the 20 countries researched in this study into those three categories.

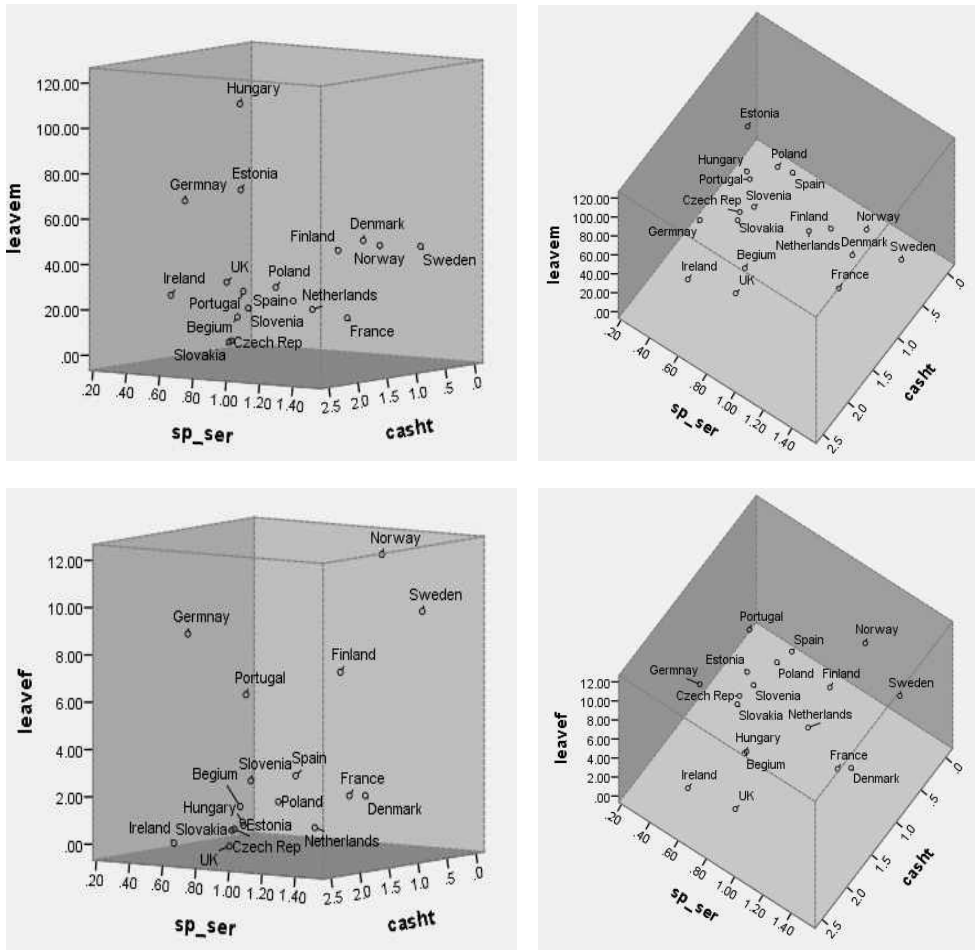
Table V-6 presents averages for gender equity, labour market rigidity, and unemployment levels in all 20 countries. First, with regard to gender equity, Sweden was highest ranking in 2004 followed by Norway, Finland, Germany, and Denmark. In 2010, as gender equity scores for Ireland and Switzerland increased but those of Sweden decreased significantly, Norway, Finland, Ireland, Denmark, and Switzerland occupied the top five positions. Sweden, Estonia, and Hungary demonstrated a decline in the level of gender equity between 2004 and 2010. Meanwhile, Slovenia, the Czech Republic, Hungary, Greece, and France had the lowest gender equity rankings in 2004.

Figure V-3. Country location along three dimensions of family policy in 2004



Note: 'casht' = public expending on family allowance; 'sp_ser' = public spending on ECEC services; 'leavem' = duration of well-paid leave available to mothers; 'leavef' = duration of well-paid leave reserved for fathers.

Figure V-4. Country location along three dimensions of family policy in 2010



Note: 'casht' = public expending on family allowance; 'sp_ser' = public spending on ECEC services; 'leavem' = duration of well-paid leave available to mothers; 'leavef' = duration of well-paid leave reserved for fathers.

Because Estonia and Hungary's scores in the Global Gender Gap Index reduced slightly, Estonia, Slovakia, the Czech Republic and Hungary appeared at the lower end of the rankings.

The top labour market rigidity rankings were held by Portugal, the Czech Republic, Germany, the Netherlands, and Slovenia. Meanwhile, Norway, Switzerland, Finland, the United Kingdom, and Ireland had the lowest labour market rigidity scores in 2004 (see Table V-6). The degree of labour market flexibility across all 20 countries did not change significantly, even during the Great Recession. In 2010, Belgium's labour market rigidity ranking rose from 2.82 to 2.95, entering the top five. Estonia was placed at the bottom end of the labour market rigidity rankings according to a significant decrease in its score from 2.46 to 2.11.

In 2004, Poland, Slovakia, Spain, and Germany appeared at the top of unemployment rate rankings, with Norway, Switzerland, the United Kingdom, Ireland, and the Netherlands at the bottom (see Table V-6). Meanwhile, in 2010, Spain, Estonia, Ireland, Slovakia, and Greece ranked highly for unemployment levels, while Norway, the Netherlands, Switzerland, Germany, and the Czech Republic were ranked lower. Poland's unemployment rates dramatically decreased from 19.4% in 2004 to 8.7% in 2010. Germany's unemployment rates also decreased by 34.2% between 2004 and 2010; consequently, it moved from the top to the lower end of the rankings among the 20

Table V-6. Country-Level Indicators II

Country	Gender Equity		Labour Market Rigidity		Unemploy -ment (%)	
	2004	2010	2004	2010	2004	2010
Belgium	0.7078	0.7531	2.82	2.95	7.4	8.4
Switzerland	0.6997	0.7627	2.18	2.18	4.4	4.9
Czech Rep.	0.6712	0.6789	2.97	2.79	8.3	7.4
Germany	0.7524	0.7590	2.95	2.95	10.8	7.1
Denmark	0.7462	0.7778	2.56	2.35	5.3	7.6
Estonia	0.6944	0.6983	2.46	2.11	10.6	17.1
Spain	0.7319	0.7580	2.76	2.76	11.1	20.0
Finland	0.7958	0.8383	2.08	2.01	10.4	8.5
France	0.6520	0.7018	2.73	2.67	8.9	8.9
U.K.	0.7365	0.7462	1.72	1.72	4.6	7.9
Greece	0.6540	0.6916	2.80	2.80	10.5	12.9
Hungary	0.6698	0.6642	2.40	2.40	5.9	11.3
Ireland	0.7335	0.7830	1.44	1.27	4.6	14.8
Netherlands	0.7250	0.7470	2.92	2.87	4.7	4.5
Norway	0.7994	0.8404	2.38	2.38	4.3	3.6
Poland	0.6802	0.7038	2.41	2.41	19.4	8.7
Portugal	0.6922	0.7144	3.98	3.49	6.7	11.4
Sweden	0.8133	0.7580	2.58	2.58	6.8	8.8
Slovenia	0.6745	0.7041	2.86	2.86	6.1	7.4
Slovakia	0.6757	0.6797	2.66	2.66	18.6	14.4

countries. Most of the 20 countries showed an increased trend in unemployment rates, though the degree of these increases varied. Ireland, the third lowest ranked in 2004, became the third highest ranked country for unemployment rates in 2010. Hungary also rose to the top group in 2010 as its unemployment rates decreased by 91.5% between 2004 and 2010.

Lastly, Table V-7 presents a correlation matrix for country-level predictors. The predictors were not highly correlated with each other: the correlation values were less than 0.7 (+,-) in all pairs.

Table V-7. Correlation of Country-level predictors

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) Cash transfers	1										
(2) ECEC services	0.300	1									
(3) Leaves for mothers	0.081	0.261	1								
(4) Leaves for fathers	-0.112	0.551**	0.320*	1							
(5) Gender equity	0.159	0.468**	0.114	0.636**	1						
(6) Labour market rigidity	-0.428**	-0.153	-0.101	0.118	-0.335*	1					
(7) Unemployment	-0.193	-0.366*	-0.087	-0.248	-0.260	0.006	1				
(8) Age	0.042	-0.336*	-0.122	-0.102	-0.105	0.301	-0.056	1			
(9) Education	0.077	0.283	0.159	0.251	0.374*	-0.397*	0.107	-0.074	1		
(10) Household income	0.147	0.267	-0.061	0.157	0.357*	-0.218	-0.531**	-0.137	-0.016	1	
(11) Female labour market participation	-0.394*	-0.398*	0.145	-0.141	-0.480**	0.187	0.272	0.023	-0.005	-0.371*	1
(12) Male household labour participation	0.323*	0.593**	0.098	0.216	0.544**	-0.492**	-0.044	-0.485**	0.216	0.179	-0.351*
(13) Male labour market participation	-0.320*	-0.452**	-0.218	-0.217	-0.406**	0.079	-0.153	0.207	-0.008	-0.053	0.447**

Note: 'Age', 'Education', 'Household income', 'Female labour market participation', 'Male household labour participation' and 'Male labour market participation' are the group-mean of each indicator.

2. Multilevel Analysis

Analysis of family policy mechanisms on fertility intentions was conducted in four phases. First, the impact of family policies (family allowance, ECEC services, childcare-related leave for the mother, and childcare-related leave for the father) on second-birth intentions was analysed, controlled by individual-level demographic and socio-economic features and country-level socio-economic structure (Model 1-3). Second, the indirect effects of family policies (family allowance, ECEC services, childcare-related leave for the mother, and childcare-related leave for the father) on second-birth intentions through women's participation in paid work were analysed (Model 2). Third, analysis was conducted to examine whether the indirect effects of family policies (family allowance, ECEC services, childcare-related leaves for the mother, and childcare-related leaves for the father) on second-birth intentions through female labour force participation were moderated by family policies (Model 3). Finally, the indirect effects of family policies (family allowance, ECEC services, childcare-related leaves for the mother, and childcare-related leaves for the father) on second-birth intentions via male partners' participation in housework were analysed (Model 4). Results of multilevel and multilevel path analyses will be presented in the following section. First, results on the impact of family policies on second-birth intentions will be reported. Then, results on the direct, indirect, and conditional indirect

effects of family allowance, ECEC services, leave for the mother, and leave for the father on second-birth intentions will be displayed.

Before conducting multilevel analyses, intraclass coefficients (ICCs) for Level 1 variables were tested to establish whether they were equal to zero to justify the use of multilevel modelling. Table V-8 presents ICCs for two mediators and a dependent variable. The ICCs for 'female labour market participation', 'male household labour participation', and 'childbearing intention' were greater than zero in all dataset analyses. This confirmed that the use of multilevel modelling was appropriate.

Table V-8. Intraclass Correlation Coefficients (ICCs)

		Parity 1	
		2004	2010
Fertility intention	Within variance	1.315	1.352
	Between variance	0.063	0.036
	ICC	0.046	0.026
Female labour market participation	Within variance	199.941	181.173
	Between variance	24.032	16.568
	ICC	0.107	0.084
Male household labour participation	Within variance	0.393	0.295
	Between variance	0.004	0.009
	ICC	0.010	0.030

2.1 Impact of family policies on second-birth intentions

The impact of family policies (family allowance, ECEC services, childcare-related leave for the mother, and childcare-related leave for the father) on childbearing intentions were analysed, and the

results are presented in Tables V-9. Model 1-1 is an unconditional model. Next, variables at individual-level (age, education, household income, female labour market participation, male household labour participation, and male labour market participation) and country-level (gender, labour market rigidity, and unemployment) were added to Model 1-1 in stages (Model 1-2 and Model 1-3 for each). As the analytical model changed from Model 1-1 to Model 1-2 and from Model 1-2 to Model 1-3, residual variances of fertility intentions at Level 1 and Level 2 were reduced, indicating that the analytical model's explanatory power improved. In particular, the addition of individual-level variables reduced not only Level 1 residual variances but also Level 2 residual variances, implying that individual-level variables' contextual effects were present.

Table V-9 presents analysis results for the impact of family allowance, ECEC services, childcare-related leave for the mother, and childcare-related leave for the father on second-birth intentions in both 2004 and 2010, controlled by individual-level and country-level variables. The effects of family policies on fertility intentions differed from 2004 to 2010. Women's intentions to have a second child increased meaningfully as the duration of well-paid leave for the father increased in 2004, and as the levels of social expenditure on ECEC services increasing in 2010. Family policies possibly affect fertility intentions by reducing motherhood opportunity costs and

Table V-9. Family Policies' Impact on second-birth Intentions

	2004			2010		
	Model 1-1	Model 1-2	Model 1-3	Model 1-1	Model 1-2	Model 1-3
Individual-level (L1)						
Intercept	2.243*** (0.064)	3.120*** (0.784)	2.391*** (0.654)	2.300*** (0.055)	0.760 (0.719)	1.193 (0.640)
Age		-0.096*** (0.006)	-0.097*** (0.006)		-0.092*** (0.006)	-0.055 (0.076)
Education		0.137*** (0.020)	0.129*** (0.020)		0.156*** (0.023)	0.209*** (0.034)
Household income		0.012 (0.021)	0.015 (0.022)		0.009 (0.009)	0.014 (0.254)
FLMP		0.000 (0.002)	0.000 (0.002)		0.003 (0.003)	0.009 (0.048)
MHLP		-0.001 (0.046)	0.001 (0.047)		-0.069 (0.071)	-0.041 (0.076)
MLMP		0.002 (0.001)	0.002 (0.001)		0.000 (0.000)	0.000 (0.039)
Country-level (L2)						
Family allowance			-0.010 (0.066)			-0.039 (0.065)
ECEC services			0.021 (0.044)			0.354* (0.159)
Leave for mothers			0.000 (0.002)			0.000 (0.022)
Leave for fathers			0.037* (0.015)			-0.034 (0.380)
Gender equity			-0.322 (0.746)			1.208 (1.577)
Labour market rigidity			0.110** (0.032)			-0.073 (0.084)
Unemployment			0.016 (0.010)			-0.021 (0.117)
Age		-0.117*** (0.018)	-0.075*** (0.020)		0.109*** (0.021)	0.041 (0.395)
Education		0.072 (0.052)	0.048 (0.068)		-0.155*** (0.029)	-0.089 (0.087)
Household income		0.163*** (0.029)	0.137*** (0.033)		0.069 (0.116)	-0.074 (0.183)
FLMP		0.007 (0.009)	-0.003 (0.007)		0.030** (0.009)	0.024 (0.342)
MHLP		-0.356 (0.379)	-0.350 (0.259)		-0.481 (0.524)	-0.702** (0.257)
MLMP		0.045*** (0.010)	0.051*** (0.011)		-0.002 (0.003)	0.000 (0.054)
Residual variance						
Level 1	1.315*** (0.047)	0.892*** (0.044)	0.893*** (0.046)	1.352*** (0.051)	0.951*** (0.038)	1.020*** (0.194)
Level 2	0.063** (0.020)	0.000 (0.009)	0.000 (0.069)	0.036** (0.012)	0.004 (0.010)	0.000 (11.708)
AIC	4322.805	47790.107	45288.474	3895.599	66421.946	66531.091
BIC	4338.490	47964.619	45216.644	3910.951	66593.312	65738.809

Note: FLFP = women's labour market participation, MHLP = male partners' household labour participation, MLMP = male partners' labour market participation FI = fertility intention;
*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

enhancing women's paid work, work-family reconciliation, and gender equity in the division of housework. Therefore, we examined ways in which the impact of family allowance, ECEC services, childcare-related leave for the mother, and childcare-related leave for the father was transmitted to fertility intentions. The following section presents the results.

2.2 Mechanisms of family allowance on second-birth intentions

Year 2004

Family allowance had no impact on second-birth intentions in 2004 (see Table V-9). Such an insignificant direct effect remained even after controlling for the effect of family allowance on mothers' weekly working hours (see Table V-10). However, the direct impact of family allowance on second-birth intentions in 2004 became negative after adding the moderating effect of family allowance on the relationship between mothers' weekly working hours and second-birth intentions to the analysis model (see Table V-11). Then, the result was again insignificant after controlling for the effect of family allowance on male partners' housework participation (see Table V-12).

Family allowance diminished mothers' weekly working hours in 2004 (see Table V-10). The negative effect of family allowance on mother's weekly working hours was sustained even after controlling for the moderating effect of family allowance on the relationship

Table V-10. Indirect Effect of Family Allowance on Second-birth Intentions through Female Labour Market Participation.

	2004		2010	
	FLMP	SI	FLMP	SI
Individual-level(L1)				
FLMP		-0.001 (0.002)		0.008*(0.003)
Age		-0.095***(0.007)		-0.097***(0.006)
Education		0.131***(0.022)		0.154***(0.028)
Household income		0.004 (0.023)		0.009 (0.012)
MHLP		-0.008 (0.049)		-0.009 (0.090)
MLMP		0.002 (0.001)		0.003 (0.927)
Country-level (L2)				
Family allowance	-4.343*(1.850)	0.118 (0.066)	-3.055*(1.309)	-0.038 (0.033)
FLMP		0.027**(0.010)		0.018**(0.005)
Gender equity		0.138 (1.067)		0.333 (0.716)
Labour market rigidity		-0.083*(0.034)		-0.392***(0.070)
Unemployment		0.021*(0.010)		-0.012 (0.007)
ECEC service		-0.173 (0.116)		0.406***(0.068)
Leave for mother		0.003*(0.002)		-0.002***(0.001)
Leave for father		-0.007 (0.017)		0.001 (0.007)
Age		-0.183***(0.035)		-0.031 (0.016)
Education		-0.256*(0.113)		-0.063 (0.074)
Household income		0.309***(0.065)		0.174***(0.021)
MHLP		-0.246 (0.196)		-0.327 (0.236)
MLMP		0.059***(0.011)		0.009 (0.009)
Intercept	39.632***(2.436)	4.070***(0.844)	38.438***(1.939)	2.406*(1.106)
Residual variance				
L1 mediator	180.992*** (20.333)		144.730*** (11.730)	
dependent	0.883*** (0.050)		0.937*** (0.043)	
L2 mediator	21.821** (2.436)		15.940** (5.370)	
dependent	0.000 (0.001)		0.000 (0.001)	
Indirect effect				
Normal	-0.118* (0.059)		-0.054 (0.028)	
Monte Carlo	-0.119 (1.434)		-0.053 (1.591)	
	LL=-2.960, UL=2.703		LL=-3.209, UL=3.092	
AIC	38826.418		35989.943	
BIC	28983.794		36144.469	

Note: FLFP=women's labour market participation, MHLP=male partners' household labour participation, MLMP=male partners' labour market participation, SI=second-birth intentions; *p<0.05, **p<0.01, ***p<0.001.

Table V-11. Conditional Indirect Effect of Family Allowance on Second-birth Intentions through Female Labour Market Participation.

	2004		2010	
	FLMP	SI	FLMP	SI
Individual-level(L1)				
FLMP		0.000 (0.002)		0.007*(0.003)
Age		-0.094***(0.006)		-0.093***(0.007)
Education		0.138***(0.022)		0.147***(0.026)
Household income		0.000 (0.022)		0.011 (0.012)
MHLP		-0.012 (0.048)		-0.009 (0.087)
MLMP		0.002 (0.001)		0.003 (0.003)
Country-level (L2)				
Family allowance	-4.629*(1.870)	-2.209***(0.388)	-3.341*(1.299)	1.466 (1.701)
LMP		-0.037***(0.011)		0.095 (0.049)
Family allowance *FLMP		0.064***(0.011)		-0.045 (0.051)
Gender equity		-0.950(0.831)		1.567 (1.812)
Labour market rigidity		-0.192***(0.036)		0.085 (0.248)
Unemployment		-0.002(0.007)		-0.030**(0.011)
ECEC services		-0.188***(0.061)		0.282 (0.381)
Leave for mother		-0.007***(0.001)		0.003 (0.002)
Leave for father		0.065***(0.013)		-0.054 (0.028)
Age		0.056 (0.030)		-0.017 (0.032)
Education		-0.113***(0.016)		-0.154*(0.071)
Household income		0.105**(0.039)		0.046 (0.120)
FHLP		0.541***(0.149)		0.183 (0.992)
FLMP		0.005***(0.001)		-0.002 (0.004)
intercept	40.158***(3.112)	3.112***(0.509)	38.937***(1.890)	-0.945 (2.899)
Residual variance				
L1 mediator		175.372 (19.753)***		146.690 (11.002)***
dependent		0.876 (0.047)***		0.942 (0.040)***
L2 mediator		21.686 (7.745)**		15.822 (1.890)***
dependent		0.000 (0.001)		0.000 (0.003)
Conditional indirect effect				
Low Normal		0.047 (0.038)		-0.247 (0.134)
Monte Carlo		0.042 (1.731)		-0.250 (1.829)
		LL=-3.375, UL=3.257		LL=-3.8773, UL=3.343
Med Normal		-0.101 (0.054)		-0.171 (0.083)*
Monte Carlo		-0.106 (2.192)		-0.170 (2.334)
		LL=-4.4331, UL-4.216		LL=-4.785, UL=4.433
High Normal		-0.249 (0.114)*		-0.096 (0.018)
Monte Carlo		-0.250 (2.829)		-0.097 (3.005)
		LL=-5.745, UL=5.324		LL=-6.033, UL=5.839
AIC		41336.288		38371.771
BIC		41501.010		38533.624

Note: FLFP=women's labour market participation, MHLP=male partners' household labour participation, MLMP=male partners' labour market participation, SI=second-birth intentions; *p<0.05, **p<0.01, ***p<0.001.

Table V-12. Indirect Effect of Family Allowance on Second-birth Intentions through Male Household Labour Participation in 2004

	FLMP	MHLP	SI
Individual-level (L1)			
FLMP			-0.001 (0.002)
MHLP			-0.008 (0.049)
Age			-0.095***(0.007)
Education			0.131***(0.022)
Household income			0.004 (0.023)
MLMP			0.002 (0.001)
Country-level (L2)			
Family allowance	-4.343*(1.850)	0.023 (0.030)	-0.212 (0.592)
FLMP			0.019 (0.020)
Family allowance*FLMP			0.009 (0.016)
MHLP			-0.299 (0.171)
Gender equity			0.214 (1.007)
Labour market rigidity			-0.102*(0.049)
Unemployment			0.017 (0.013)
ECEC service			-0.161 (0.118)
Leave for mother			0.002 (0.003)
Leave for father			-0.003 (0.020)
Age			-0.172***(0.043)
Education			-0.223 (0.134)
Household income			0.286***(0.081)
MLMP			0.055**(0.016)
Intercept	39.632***(2.436)	0.584***(0.041)	4.267***(0.964)
Residual variance			
L1 mediator 1		180.992 (20.333)***	
mediator 2		0.435 (0.059)***	
dependent		0.883 (0.050)***	
L2 mediator 1		21.821 (8.009)**	
mediator 2		0.007 (0.002)***	
dependent		0.000 (0.001)	
Conditional indirect effect			
Low Normal		-0.100 (0.068)	
Monte Carlo		-0.100 (2.92), LL=-5.886, UL=5.673	
Med Normal		-0.120 (0.057)*	
Monte Carlo		-0.119 (3.442), LL=-6.935, UL=6.671	
Hig Normal		-0.140 (0.068)*	
Monte Carlo		-0.136 (4.212), LL=-8.469, UL=8.190	
Indirect effect			
Normal		-0.007 (0.010)	
Monte Carlo		-0.007 (0.587), LL=-1.298, UL=1.264	
AIC		38797.536	
BIC		38975.219	

Note: FLFP=women's labour market participation, MHLP=male partners' household labour participation, MLMP=male partners' labour market participation, SI=second-birth intentions; *p<0.05, **p<0.01, ***p<0.001.

Table V-13. Indirect Effect of Family Allowance on Second-birth Intentions through Male Household Labour Participation in 2010

	FLMP	MHLP	SI
Individual-level (L1)			
FLMP			0.008*(0.003)
MHLP			-0.009 (0.090)
Age			-0.097***(0.006)
Education			0.154***(0.028)
Household income			0.009 (0.012)
MLMP			0.003 (0.003)
Country-level (L2)			
Family allowance	-3.055*(1.309)	0.006(0.030)	0.200 (0.945)
FLMP			0.025 (0.030)
Family allowance*FLMP			-0.007 (0.028)
MHLP			-0.372 (0.278)
Gender equity			0.467 (0.971)
Labour market rigidity			-0.353*(0.157)
Unemployment			-0.012 (0.007)
ECEC service			0.438**(0.148)
Leave for mother			-0.002 (0.002)
Leave for father			-0.002 (0.018)
Age			-0.034*(0.015)
Education			-0.059 (0.074)
Household income			0.173***(0.024)
MLMP			0.008 (0.008)
Intercept	38.438***(1.939)	0.522***(0.041)	2.087 (1.925)
Residual variance			
L1 mediator 1		144.730 (11.730)***	
mediator 2		0.206 (0.024)***	
dependent		0.937 (0.043)***	
L2 mediator 1		15.940 (5.370)**	
mediator 2		0.007 (0.002)***	
dependent		0.000 (0.001)	
Conditional indirect effect			
Low Normal		-0.066 (0.059)	
Monte Carlo		-0.069 (3.152), LL=-6.307, UL=6.157	
Med Normal		-0.055 (0.029)	
Monte Carlo		-0.06 (3.928), LL=-7.825, UL=7.715	
Hig Normal		-0.045 (0.045)	
Monte Carlo		-0.041 (4.976), LL=4.976, UL=9.	
Indirect effect			
Normal		-0.041 (4.976)	
Monte Carlo		-0.002 (0.913). LL=-2, UL=1.988	
AIC		35961.484	
BIC		36135.949	

Note: FLFP=women's labour market participation, MHLP=male partners' household labour participation, MLMP=male partners' labour market participation, SI=second-birth intentions; *p<0.05, **p<0.01, ***p<0.001.

between female labour market participation and second-birth intentions (see Table V-11), and the effect of family allowance on male household labour participation (see Table V-12). However, such a negative effect (on mothers' weekly working hours) was not transmitted to second-birth intentions. The indirect effect of family allowance on second-birth intentions via female labour market participation was insignificant in 2004 (see Table V-11 and V-12).

Family allowance positively moderated the negative effect of mothers' weekly working hours on second-birth intentions in 2004 (see Table V-11). However, such a positive moderating effect did not meaningfully enhance the indirect effect of family allowance on second-birth intentions via mothers' weekly working hours. As a result, the conditional indirect effect of family allowance on second-birth intentions through female labour market participation in 2004 was insignificant. Meanwhile, the positive moderating effect of family allowance on second-fertility intentions disappeared after controlling for the effect of family allowance on male partners' housework participation (see Table V-12).

Finally, family allowance had a positive but statistically insignificant effect on the share of male partner's housework within a couple with one child in 2004 (see Table V-12). In turn, the insignificant effect of family allowance on male household labour participation led to the insignificant indirect effect of family allowance

on second-birth intentions via male household labour participation.

Year 2010

Family allowance had an insignificant effect on second-birth intentions in 2010 (see Table V-9). Such an insignificant direct effect remained even after controlling for the effect of family allowance on mothers' weekly working hours (see Table V-10), the moderating effect of family allowance on the relationship between mothers' weekly working hours and second-birth intentions (see Table V-11), and the effect of family allowance on male partners' housework participation (see Table V-13). As a result, this study demonstrates that family allowance insignificantly affected fertility intentions of women with one child in a direct way in both 2004 and 2010.

Family allowance reduced mothers' weekly working hours in 2010, as in 2004 (see Table V-10). The negative effect of family allowance on mother's weekly working hours was sustained, even after controlling for the moderating effect of family allowance on the relationship between female labour market participation and second-birth intentions (see Table V-11), and the effect of family allowance on male household labour participation (see Table V-13). However, such a negative effect was not transmitted to second-order fertility intentions; the indirect effect of family allowance on second-birth intentions via mothers' weekly working hours was

insignificant.

Family allowance showed an insignificant moderating effect on the relationship between mother's weekly working hours and second-birth intentions in 2010, which is the only difference in family allowance mechanisms on second-order fertility in 2004 and 2010: the moderating effect of family allowance in 2004 was positive (see Tables V-11, V-12, and V-13).

Finally, in 2010, family allowance insignificantly affected male partners' share of housework within a couple with one child, which in turn led to the insignificant indirect effect of family allowance on second-birth intentions via male household labour participation (see Table V-13).

Summary and discussion

In general, family allowance showed similar mechanisms for affecting second-birth intentions in both 2004 and 2010. Family allowance did not affect second-birth intentions directly or indirectly. The direct effect of family allowance on second-birth intentions was insignificant. The indirect and the conditional indirect effects on second-birth intentions via female labour market participation were insignificant, regardless of the negative effect of family allowance on female labour market participation. In addition, family allowance insignificantly affected second-birth intentions. In turn, the indirect

effect of family allowance on second-birth intentions via male household labour participation was also insignificant.

The insignificant effect of family allowance on second-birth intentions concurred with the work of Billingsley and Ferrarini (2014). They reported that cash benefits for families with dependent children (including family allowance, taxation, homecare allowance, flat-late benefits of leave, and maternity grants) increased first-birth intentions but insignificantly affected second-birth intentions. Based on these results, Bilingsley and Ferrarini (2014) argued that cash transfers were related more to decisions about the timing of childbearing than the number of children. The same argument was made by Thévenon and Gauthier (2011). After reviewing literature on the impact of several kinds of financial support on fertility, they concluded that cash transfers positively affected the timing (but not the quantity) of having a child. The current study also supports the view that cash transfers (specifically family allowance) have a limited impact on fertility.

One possible reason for the limited effects of family allowance on fertility intention is that the levels of financial support are generally too low to cover the whole costs of raising a child. Family allowance can offset the direct costs of a child. However, family allowance covers just a small portion of the direct costs of childcare within the family; furthermore, it does not cancel out the indirect costs of having a child, which are much higher than the

direct costs (especially if women have the additional child in the context of unpredictable and insecure income and employment conditions).

Family allowance decreased mothers' weekly working hours in both 2004 and 2010. The negative effect of family allowance on women's weekly working hours is consistent with previous research results. The effect of cash transfers on female labour participation has been researched very little. However, single- and cross-country studies have consistently highlighted the negative effects of cash transfers on female labour supply (Haan & Wrohlich, 2011; Fehr & Ujhelyiova, 2013; Ang, 2015; Magda et al., 2018; Del Boca et al., 2008). In particular, such a negative effect was higher among women with a lower level of education.

In addition to these prior results, this study verifies that the negative effect of cash transfers (family allowance) on female labour participation is still significant for mothers with one child, after controlling for demographic and socio-economic characteristics at the individual level, and gender and labour market structures, and even under the influence of the Great Recession. As such, the extent of the negative effect reduced in 2010 more than in 2004, indicating that family allowance somehow provided less encouragement to mothers to reduce their labour participation in the context of unpredictable and insecure economic conditions.

The effect of family allowance on female labour market participation and male household labour participation was not transmitted to fertility intentions. However, it is evident that controlling for the effect of family allowance on female labour market participation and male household labour participation changed the direction and/or size of the effect of family allowance and female labour market participation on fertility intentions. Therefore, to articulate those indirect and conditional indirect pathways is still worthy, providing a more precise measurement and greater understanding of family allowance's mechanisms on fertility intentions.

2.3 Early Childhood Education and Care services' mechanisms on second-birth intentions

Year 2004

ECEC services had no impact on second-birth intentions in 2004 (see Table V-9). However, after controlling for the effect of ECEC services on mothers' weekly working hours, the direct effect of ECEC services on second-birth intentions became positive (see Table V-14). Then, after controlling for the moderating effect of ECEC services on the relationship between mothers' weekly working hours and second-birth intentions, the direct effect of ECEC services on second-birth intentions was changed from positive to negative (see Table V-15). The negative direct effect of ECEC services on

Table V-14. Indirect Effect' ECEC services on Second-birth Intentions through Female Labour Market Participation.

	2004		2010	
	FLMP	SI	FLMP	SI
Individual-level(L1)				
FLMP		-0.001 (0.002)		0.008*(0.003)
Age		-0.095***(0.007)		-0.097***(0.006)
Education		0.131***(0.022)		0.154***(0.028)
Household income		0.004 (0.023)		0.009 (0.012)
MHLP		-0.008 (0.049)		-0.009 (0.090)
MLMP		0.002 (0.001)		0.003 (0.003)
Country-level (L2)				
ECEC services	0.698 (2.406)	0.027**(0.010)	-3.787 (2.238)	0.406***(0.068)
FLMP		-0.173 (0.116)		0.018**(0.005)
Gender equity		0.138 (1.067)		0.333 (0.716)
Labour market rigidity		-0.083*(0.034)		-0.392***(0.007)
Unemployment		0.021*(0.010)		-0.012 (0.007)
Family allowance		0.118 (0.066)		-0.038 (0.033)
Leave for mother		0.003*(0.002)		-0.002***(0.001)
Leave for father		-0.007 (0.017)		0.001 (0.007)
Age		-0.183***(0.035)		-0.031 (0.016)
Education		-0.256*(0.113)		-0.063 (0.074)
Household income		0.309***(0.066)		0.174***(0.021)
MHLP		-0.246 (0.196)		-0.327 (0.236)
MLMP		0.059***(0.011)		0.009 (0.009)
Intercept	35.000***(2.399)	4.070***(0.844)	38.179***(2.418)	2.406*(1.106)
Residual variance				
L1 mediator	180.992 (20.333)***		144.730 (11.730)***	
dependent	0.883 (0.050)***		0.937 (0.043)***	
L2 mediator	26.114 (7.840)**		17.014 (4.852)***	
dependent	0.000 (0001)		0.000 (0.001)	
Indirect effect				
Normal	0.019 (0.067)		-0.067 (0.044)	
Monte Carlo	-0.121 (0.363)		-0.068 (1.961)	
	LL=-1.011, UL=0.526		LL=-3.924, UL=3.778	
AIC	38829.471		35991.051	
BIC	38986.847		36145.578	

Note: FLFP=women's labour market participation, MHLP=male partners' household labour participation, MLMP=male partners' labour market participation, SI=second-birth intentions; *p<0.05, **p<0.01, ***p<0.001.

Table V-15. Conditional Indirect Effect' ECEC services on Second-birth Intentions through Female Labour Market Participation.

	2004		2010	
	FLMP	SI	FLMP	SI
Individual-level(L1)				
FLMP		0.000 (0.002)		0.007*(0.003)
Age		-0.094***(0.006)		-0.093***(0.007)
Education		0.138***(0.022)		0.148***(0.026)
Household income		0.001 (0.022)		0.011 (0.012)
MHLP		-0.011 (0.048)		-0.007 (0.088)
MLMP		0.002 (0.001)		0.003 (0.003)
Country-level (L2)				
ECEC service	-0.416 (2.373)	-4.031**(1.381)	-4.374*(2.133)	10.342***(0.851)
FLMP		-0.043*(0.019)		0.157***(0.009)
ECEC Service*FLMP		0.119**(0.042)		-0.270***(0.022)
Gender equity		2.050 (1.553)		3.973***(0.517)
Labour market rigidity		-0.157***(0.045)		-0.105**(0.032)
Unemployment		-0.025 (0.015)		0.009 (0.005)
Family allowance		-0.113 (0.073)		0.082***(0.017)
Leave for mother		-0.007***(0.001)		-0.001***(0.000)
Leave for father		-0.006 (0.033)		0.016**(0.005)
Age		-0.079 (0.056)		-0.121***(0.016)
Education		-0.049 (0.029)		0.150***(0.035)
Household income		0.066 (0.064)		0.008 (0.044)
MHLP		-0.114 (0.361)		-1.975***(0.298)
MLMP		0.006***(0.001)		-0.011***(0.001)
intercept	36.014***(2.273)	5.899***(1.612)	38.817***(2.230)	-2.493***(0.402)
Residual variance				
L1 mediator		175.372 (19.753)***		146.690 (11.002)***
dependent		0.877 (0.047)***		0.935 (0.040)***
L2 mediator		26.410 (7.424)***		16.780 (4.692)***
dependent		0.000 (0.001)		0.000 (0.001)
Conditional indirect effect				
Low Normal		0.005 (0.031)		-0.252 (0.121)*
Monte Carlo		0.005 (0.541)		-0.239 (3.948)
		LL=-1.164, UL=1.183)		LL=-8.088, UL=7.565
Med Normal		-0.012 (0.069)		0.172 (0.090)
Monte Carlo		-0.031 (0.599)		0.169 (4.366)
		LL=-1.323, UL=1.277		LL=-8.463, UL=8.835
Hig Normal		-0.030 (0.172)		0.608 (0.297)*
Monte Carlo		-0.031 (0.699)		0.597 (4.994)
		LL=-1.078, UL=1.018		LL=-9.271, UL=10.52
AIC		41341.554		38364.786
BIC		41506.276		38526.639

Note: FLFP=women's labour market participation, MHLP=male partners' household labour participation, MLMP=male partners' labour market participation, SI=second-birth intentions; *p<0.05, **p<0.01, ***p<0.001.

Table V-16. Indirect Effect's ECEC Services on Second-birth Intentions through Male Household Labour Participation in 2004

	FLMP	MHLP	SI
Individual-level (L1)			
FLMP			-0.001 (0.002)
MHLP			-0.008 (0.049)
Age			-0.095***(0.007)
Education			0.131***(0.022)
Household income			0.004 (0.023)
MLMP			0.002 (0.001)
Country-level (L2)			
ECEC service	0.698 (2.406)	0.129*(0.059)	-5.864***(0.244)
FLMP			-0.026***(0.002)
ECEC service*FLMP			0.164***(0.007)
MHLP			-0.321***(0.039)
Gender equity			2.260***(0.386)
Labour market rigidity			-0.193***(0.007)
Unemployment			-0.023***(0.003)
Family aloowance			-0.032**(0.009)
Leave for mother			-0.004***(0.000)
Leave for father			-0.068***(0.007)
Age			-0.255***(0.012)
Education			-0.336***(0.022)
Household income			0.236***(0.009)
MLMP			0.003 (0.002)
Intercept	35.000***(2.3999)	0.523***(0.037)	10.644***(0.356)
Residual variance			
L1 mediator 1		180.992 (20.333)***	
mediator 2		0.435 (0.059)***	
dependent		0.881 (0.049)***	
L2 mediator 1		26.114 (7.840)**	
mediator 2		0.005 (0.001)***	
dependent		0.000 (0.001)	
Conditional indirect effect			
Low Normal		0.012 (0.041)	
Monte Carlo		0.012 (0.829), LL=-1.785, UL=1.839	
Med Normal		0.052 (0.180)	
Monte Carlo		0.051 (0.927), LL=-1.912, UL=2.13	
Hig Normal		0.092 (0.318)	
Monte Carlo		0.092 (1.084), LL=-2.168, UL=2.547	
Indirect effect 2			
Normal		-0.042 (0.021)*	
Monte Carlo		-0.041 (0.302), LL=-0.745, UL=0.565	
AIC		38792.840	
BIC		38970.523	

Note: FLFP=women's labour market participation, MHLP=male partners' household labour participation, MLMP=male partners' labour market participation, SI=second-birth intentions; *p<0.05, **p<0.01, ***p<0.001.

Table V-17. Indirect Effect's ECEC Services on Second-birth Intentions through Male Household Labour Participation in 2010

	FLMP	MHLP	SI
Individual-level (L1)			
FLMP			0.008*(0.003)
MHLP			-0.009 (0.090)
Age			-0.097***(0.006)
Education			0.154***(0.028)
Household income			0.009 (0.012)
MLMP			0.003 (0.003)
Country-level (L2)			
ECEC service	-3.787 (2.239)	0.168***(0.036)	8.961***(1.614)
FLMP			0.165***(0.028)
ECEC service*FLMP			-0.241***(0.046)
MHLP			-0.845***(0.205)
Gender equity			3.275***(0.892)
Labour market rigidity			-0.053 (0.074)
Unemployment			-0.004 (0.005)
Family aloowance			0.072**(0.024)
Leave for mother			0.001 (0.001)
Leave for father			-0.004 (0.007)
Age			-0.074***(0.016)
Education			0.026 (0.050)
Household income			-0.042 (0.042)
MLMP			0.005 (0.009)
Intercept	38.179***(2.418)	0.403***(0.035)	-3.382**(1.166)
Residual variance			
L1 mediator 1		144.730 (11.730)***	
mediator 2		0.206 (0.024)***	
dependent		0.936 (0.043)***	
L2 mediator 1		17.014 (4.852)***	
mediator 2		0.003 (0.001)**	
dependent		0.000 (0.001)	
Conditional Indirect effect			
Low Normal		-0.288 (0.192)	
Monte Carlo		-0.287 (1.918), LL=-4.144, UL=3.508	
Med Normal		0.041 (0.042)	
Monte Carlo		0.040 (2.898), LL=-5.734, UL=5.823	
Hig Normal		0.378 (0.271)	
Monte Carlo		0.373 (4.064), LL=-7.703, UL=8.511	
Indirect effect 2			
Normal		-0.142 (0.051)**	
Monte Carlo		-0.142 (0.405), LL=-1.116, UL=0.596	
AIC		35949.959	
BIC		36124.425	

Note: FLFP=women's labour market participation, MHLP=male partners' household labour participation, MLMP=male partners' labour market participation, SI=second-birth intentions; *p<0.05, **p<0.01, ***p<0.001.

second-birth intentions remained, additionally controlled by the effect of ECEC services on male partners' housework participation (see Table V-16).

ECEC services had an insignificant effect on mothers' weekly working hours in 2004 (see Table V-14). The insignificant effect of ECEC services on mothers' weekly working hours was sustained, even after controlling for the moderating effect of ECEC services on the relationship between female labour market participation and second-birth intentions (see Table V-15) and the effect of ECEC services on male partners' housework participation (see Table V-16). Due to such an insignificant effect of ECEC services on mothers' weekly working hours, the indirect effect of ECEC services on second-birth intentions via mothers' weekly working hours was also insignificant.

Next, the moderating effect of ECEC services on the relationship between female labour market participation and second-birth intentions was seen to be positive (see Table V-15). ECEC services significantly reduced the negative impact of mothers' weekly working hours on second-birth intentions. However, the positive moderating effect of ECEC services had an insignificant effect on second-birth intentions via mothers' weekly working hours; furthermore, the conditional indirect effect of ECEC services on second-birth intentions through mothers' weekly working hours was

insignificant.

As the moderation effect of ECEC services on the relationship between female labour market participation and second-birth intentions was controlled, the positive effect of ECEC services on second-birth intentions became negative and the insignificant correlation between mothers' working hours and second-birth intentions became negative. These results indicate that in 2004, ECEC services contributed to second-birth intentions through an ECEC services' moderating mechanism on the relationship between female labour market participation and second-birth intentions, rather than an ECEC services' direct or indirect mechanism via mother's weekly working hours.

ECEC services increased male partners' share of housework within couples with one child in 2004 (see Table V-16). However, this positive effect was not transmitted to second-birth intentions, which in turn led to an insignificant indirect effect of ECEC services on second birth intentions via male household labour participation.

Year 2010

The impact of ECEC services on second-birth intentions was positive in 2010 (see Table V-9). The positive direct effect of ECEC services on second-birth intentions remained the same, even after controlling for the effect of ECEC services on mother's weekly working hours (see Table V-14), the moderating effect of ECEC

services on mother's weekly working hours and second-birth intentions (see Table V-15), and the effect of ECEC services on male partners' housework participation (see Table V-17).

ECEC services had an insignificant effect on mothers' weekly working hours in Model 2 (see Table V-14). When an ECEC services' moderating pathway was added to the relationship between mothers' weekly working hours and second-birth intentions, the effect of ECEC services on mothers' weekly working hours became negative in 2010 (see Table V-15). Furthermore, after adding the effect of ECEC services on male partner's housework participation, the effect of ECEC services on mothers' weekly working hours once again became insignificant (see Table V-17). Meanwhile, regardless of the direction of effect of ECEC services on mothers' weekly working hours, the indirect effect of ECEC services on second-birth intentions via mothers' weekly working hours was insignificant (see Tables V-14, V-15, and V-17).

ECEC services negatively moderated the relationship between mothers' weekly working hours and second-birth intentions in 2010 (see Table V-15). Such a negative moderation effect of ECEC services on the relationship between mothers' weekly working hours and second-birth intentions remained, even after controlling for the effect of ECEC services on male partners' housework participation (see Table V-17). However, the moderating effect of ECEC services

did not have an impact on the indirect effect of ECEC services on second-birth intentions via mothers' weekly working hours: the conditional indirect effect of ECEC services on second-birth intentions through mothers' weekly working hours was insignificant.

ECEC services increased male partners' share of housework within couples with one child in 2010 (see Table V-17). However, the positive effect of ECEC services on male household labour participation was not transmitted to second-birth intentions. This in turn led to an insignificant indirect effect of ECEC services on second-birth intentions via male household labour participation.

Summary and discussion

ECEC service mechanisms for affecting second-birth intentions differed from 2004 to 2010. In fact, in Model 2, the direct effects of ECEC services on second-birth intentions were positive in both 2004 and 2010, when controlled for by the effect of ECEC services on mothers' weekly working hours. However, adding the pathway of ECEC services' moderating the relationship between mothers' working hours and second-birth intentions in 2004, the direct effects of ECEC services on second-birth intentions became negative. Instead, ECEC services transmitted a positive effect on second-birth intentions by moderating the negative relationship between mothers' weekly working hours and second-birth intentions in 2004. That is, in the context

whereby mothers' paid work has a negative correlation with second-birth intentions, social expenditure on early childhood education and childcare services mitigates the negative effects of maternal employment on second-birth intentions by reducing the substitution effects of maternal employment.

In 2010, ECEC service mechanisms on second-birth intentions demonstrated different outcomes. After controlling for the effects of ECEC services on mothers' weekly working hours, the direct positive effect of ECEC services on second-birth intentions remained while somehow moderating the positive relationship between mothers' weekly working hours and second-birth intentions. In 2010, the relationship between mothers' working hours and second-birth intentions was positive. In this context, the state's financial support for ECEC services (which could offset direct and indirect costs of having a child) led to a significant increase in mothers' intentions to have a second child. Previous studies have found that ECEC services are positively associated with fertility rates; however, the findings in this study suggest that this is only the case when the relationship between women's paid work and fertility intentions is positive. This underlines that the association between ECEC services and second-birth intentions (affordability) depends on the context of the association between mothers' working hours and second-birth intentions.

Meanwhile, the (conditional) indirect effects of ECEC services

on second-birth intentions via the mother's weekly working hours and father's housework participation showed no effect in both 2004 and 2010. First, the impact of ECEC services on mothers' weekly working hours was insignificant, and in turn the indirect and conditional indirect effects of ECEC services on second-birth intentions via mothers' weekly working hours was also insignificant. The insignificant effects of ECEC services on mothers' working hours might be influenced by the choice of an indicator for ECEC services. This study used the levels of social expenditure on ECEC services for children aged 0−5 years as an indicator. According to previous studies, levels of state support for childcare services for children aged 0−2 years and 3−5 years affected fertility differently; the former had a positive impact (Pettit & Hook, 2005; Thévenon, 2013) and the latter had an insignificant or negative impact on female labour market participation (Cukrowska-Torzewska, 2017; Bouchard et al., 2018). Therefore, the use of social expenditure on ECEC services for children aged 0−5 years as an indicator might lead to ambiguous results in terms of the impact of ECEC services on female labour market participation.

In addition, ECEC services significantly increased male partners' share of housework in both 2004 and 2010. However, the positive effect of ECEC services on fathers' housework participation was not transmitted to mothers' second-child intentions. Previous

research mostly analysed the impact of childcare-related leave schemes (ex. parental leave, paternity leave, and daddy quotas) on the division of household labour; however, it hardly examined the impact of childcare services. The positive effects of ECEC services on men's housework participation in this study is in line with the research of Tamilina and Tamilina (2014). They demonstrated that the availability of non-parental childcare provided by the state, family, and market significantly increased men's domestic housework. In particular, the work of Tamilina and Tamilina (2014) showed that publicly funded childcare services for children aged 0−3 years demonstrated the strongest positive effect on men's share of housework, whilst also increasing women's labour market participation. They argued that public childcare allowed individuals to behave according to individual gender ideology, which in turn increased gender equity levels within the family. Accordingly, the question arises how childcare services supported by the state contribute to gender equity in terms of the division of labour within the family. A study by Legazpe and Davia (2019) considers this issue. According to their findings, couples' childcare arrangements depend on childcare costs; they choose to use informal (family and relative) childcare when formal childcare service prices increase. When using formal childcare services, there is also an increase in the father’s involvement in childcare. Therefore, the findings from the previous research and the current study suggest that

state support for ECEC services encourages couples to use formal childcare; furthermore, as a result, this increases men's housework and women's paid work, implying the enhancement of gender equity within the family context.

2.4 Mechanisms of leave for the mother on second-birth intentions

Year 2004

Leave for the mother had no impact on second-birth intentions in 2004 (see Table V-9). After controlling for the effect of leave for the mother on mother's weekly working hours, this was found to have a positive direct effect on second-birth intentions (see Table V-18). However, the positive direct effect of leave for the mother on second-birth intention diminished when the moderating effect of leave for the mother on the relationship between mothers' weekly working hours and second-birth intention was added to the analysis model (see Table V-19). Such an insignificant direct effect of leave for the mother on second-birth intention remained, even after controlling for the indirect effect of leave for the mother on second-birth intention via male partners' participation in housework (see Table V-20).

The duration of well-paid leave for the mother increased mother's weekly working hours in 2004 (see Table V-18). The positive effect of leave for the mother on mother's weekly working hours was sustained, even after controlling for the moderating effect

V-18. Indirect Effect of Leave for the Mother on Second-birth Intentions through Female Labour Market Participation.

	2004		2010	
	FLMP	SI	FLMP	SI
Individual-level(L1)				
FLMP		-0.001 (0.002)		0.008*(0.003)
Age		-0.095***(0.007)		-0.097***(0.006)
Education		0.131***(0.022)		0.154***(0.028)
Household income		0.004 (0.023)		0.009 (0.012)
MHLP		-0.008 (0.049)		-0.009 (0.090)
MLMP		0.002 (0.001)		0.003 (0.003)
Country-level (L2)				
Leave for mother	0.087*(0.036)	0.003*(0.002)	-0.017 (0.040)	-0.002***(0.001)
FLMP		0.027**(0.010)		0.018**(0.005)
Gender equity		0.138 (1.067)		0.333 (0.716)
Labour market rigidity		-0.083*(0.034)		-0.392***(0.070)
Unemployment		0.021*(0.010)		-0.012 (0.007)
Family allowance		0.188 (0.066)		-0.038 (0.033)
ECEC service		-0.173 (0.116)		0.406***(0.068)
Leave for father		-0.007 (0.017)		0.001 (0.007)
Age		-0.183***(0.035)		-0.031 (0.016)
Education		-0.256*(0.113)		-0.063 (0.074)
Household income		0.309***(0.066)		0.174***(0.021)
MHLP		-0.246 (0.196)		-0.327 (0.236)
MLMP		0.059***(0.011)		0.009 (0.009)
Intercept	33.136***(1.714)	4.070***(0.844)	35.944***(2.046)	2.406*(1.106)
Residual variance				
L1 mediator	180.992 (20.333)***		144.730 (11.720)***	
dependent	0.883 (0.050)***		0.937 (0.043)***	
L2 mediator	20.624 (6.143)**		18.531 (5.252)***	
dependent	0.000 (0.001)		0.000 (0.001)	
Indirect effect				
Normal	0.002 (0.001)		0.000 (0.001)	
Monte Carlo	0.002 (0.121) LL=-0.258, UL=0.269		0.000 (0.206) LL=-0.450, UL=0.449	
AIC	38825.459		35992.503	
BIC	38982.835		36147.029	

Note: FLFP=women's labour market participation, MHLP=male partners' household labour participation, MLMP=male partners' labour market participation, SI=second-birth intentions; *p<0.05, **p<0.01, ***p<0.001.

Table V-19. Conditional Indirect Effect of Leave for the Mother on Second-birth Intentions through Female Labour Market Participation.

	2004		2010	
	FLMP	SI	FLMP	SI
Individual-level(L1)				
FLMP		0.000 (0.002)		0.007*(0.003)
Age		-0.094***(0.006)		-0.093***(0.007)
Education		0.139***(0.022)		0.147***(0.026)
Household income		0.001 (0.022)		0.011 (0.012)
MHLP		-0.011 (0.048)		-0.007 (0.088)
MLMP		0.002 (0.001)		0.003 (0.003)
Country-level (L2)				
Leave for mothers	0.093**(0.035)	0.009 (0.011)	-0.022 (0.029)	0.085***(0.009)
FLMP		0.007 (0.010)		0.077***(0.009)
Leave for mother *FLMP		-0.003 (0.003)		-0.022***(0.002)
Gender equity		-2.686 (2.073)		0.717 (0.408)
Labour market rigidity		-0.141 (0.076)		-0.242***(0.048)
Unemployment		0.016 (0.013)		-0.025***(0.006)
Family allowance		-0.110 (0.081)		-0.296***(0.031)
Service		-0.218 (0.115)		0.224*(0.109)
Leave for father		0.083*(0.033)		-0.067***(0.009)
Age		0.094 (0.051)		0.023 (0.013)
Education		-0.141***(0.025)		-0.110**(0.036)
Household income		0.110(0.071)		0.131*(0.052)
MHLP		0.930 (0.654)		0.684 (0.422)
MLMP		0.004***(0.001)		0.010***(0.001)
Intercept	33.089***(1.725)	1.120 (0.618)	3.384***(1.937)	-1.160 (0.651)
Residual variance				
L1 mediator		175.372 (19.753)***		146.690 (11.002)***
dependent		0.879 (0.047)***		0.936 (0.040)***
L2 mediator		19.743 (5.779)**		18.749 (4.981)***
dependent		0.000 (0.001)		0.000 (0.001)
Conditional indirect effect				
	Normal	0.001 (0.001)		0.001 (0.002)
Low	Monte Carlo	0.001 (0.352)		0.003 (1.711)
		LL=-0.765, UL=0.769		LL=-3.724, UL=3.749
	Normal	-0.007 (0.008)		0.014 (0.025)
Med	Monte Carlo	0.003 (8.775)		0.013 (9.574)
		LL=-19.102, UL=19.091		LL=-20.848, UL=20.958
	Normal	-0.015 (0.016)		0.027 (0.048)
Hig	Monte Carlo	-0.008 (17.503)		0.034 (17.489)
		LL=-38.209, UL=38.192		LL=37.982, UL=38.379
AIC		41338.859		38368.183
BIC		41503.381		38530.036

Note: FLFP=women's labour market participation, MHLP=male partners' household labour participation, MLMP=male partners' labour market participation, SI=second-birth intentions; *p<0.05, **p<0.01, ***p<0.001.

Table V-20. Indirect Effect of Leaves for the Mother on Second-birth intentions through Male Household Labour Participation in 2004

	FLMP	MHLP	SI
Individual-level (L1)			
FLMP			-0.001 (0.002)
MHLP			-0.008 (0.049)
Age			-0.095***(0.007)
Education			0.131***(0.022)
Household income			0.004 (0.022)
MLMP			0.002 (0.001)
Country-level (L2)			
Leave for mother	0.087*(0.036)	0.000 (0.001)	0.001 (0.006)
FLMP			0.027**(0.010)
Leave for mother*FLMP			0.000 (0.000)
MHLP			-0.243 (0.194)
Gender equity			0.297 (1.270)
Labour market rigidity			-0.073 (0.046)
Unemployment			0.021*(0.010)
Family allowance			0.119 (0.066)
ECEC service			-0.169 (0.120)
Leave for father			-0.010 (0.020)
Age			-0.188***(0.039)
Education			-0.257*(0.113)
Household income			0.311***(0.065)
MLMP			0.059***(0.011)
Intercept	33.136***(1.714)	0.605***(0.023)	4.072***(0.842)
Residual variance			
L1 mediator 1		180.992 (20.333)***	
mediator 2		0.435 (0.059)***	
dependent		0.883 (0.050)***	
L2 mediator 1		20.624 (6.143)**	
mediator 2		0.007 (0.002)***	
dependent		0.000 (0.001)	
Conditional indirect effect			
Low Normal		0.002 (0.001)	
Monte Carlo		0.002 (0.133), LL=-0.284, UL=0.296	
Med Normal		0.002 (0.001)*	
Monte Carlo		0.003 (4.755), LL=-10.392, UL=10.365	
Hig Normal		0.003 (0.001)*	
Monte Carlo		-0.006 (9.754), LL=-21.277, UL=21.25	
Indirect effect 2			
Normal		0.000 (0.000)	
Monte Carlo		0.000 (2.734), LL=-5.58, UL=5.567	
AIC		38796.910	
BIC		38974.593	

Note: FLFP=women's labour market participation, MHLP=male partners' household labour participation, MLMP=male partners' labour market participation, SI=second-birth intentions; *p<0.05, **p<0.01, ***p<0.001.

Table V-21. Indirect Effect of Leaves for the Mother on Second-birth intentions through Male Household Labour Participation in 2010

	FMP	MHLP	SI
Individual-level (L1)			
FLMP			0.008*(0.003)
MHLP			-0.009 (0.090)
Age			-0.097***(0.006)
Education			0.154***(0.028)
Household income			0.010 (0.012)
MLMP			0.003 (0.003)
Country-level (L2)			
Leave for mother	-0.017 (0.040)	0.000 (0.001)	0.052***(0.007)
FLMP			0.045***(0.005)
Leave for mother*FLMP			-0.014***(0.002)
MHLP			-0.150 (0.206)
Gender equity			0.678*(0.278)
Labour market rigidity			-0.355***(0.046)
Unemployment			-0.017**(0.005)
Family allowance			-0.207***(0.030)
ECEC service			0.441***(0.054)
Leave for father			-0.032***(0.005)
Age			-0.022*(0.010)
Education			0.020 (0.049)
Household income			0.116***(0.019)
MLMP			-0.005 (0.006)
Intercept	35.944***(2.046)	0.514***(0.037)	1.356*(0.654)
Residual variance			
L1 mediator 1		144.730 (11.730)***	
mediator 2		0.206 (0.024)***	
dependent		0.936 (0.043)***	
L2 mediator 1		18.531 (5.252)***	
mediator 2		0.007 (0.002)***	
dependent		0.000 (0.001)	
Conditional indirect effect			
Low Normal		0.001 (0.001)	
Monte Carlo		0.000 (1.330), LL=-2.906, UL=2.898	
Med Normal		0.007 (0.017)	
Monte Carlo		0.016 (7.495), LL=-16.27, UL=16.368	
Hig Normal		0.014 (0.032)	
Monte Carlo		0.030 (13.683), LL=-29.784, UL=30.055	
Indirect effect 2			
Normal		0.000 (0.000)	
Monte Carlo		0.000 (0.536), LL=-1.167, UL=1.173	
AIC		35962.365	
BIC		36136.830	

Note: FLFP=women's labour market participation, MHLP=male partners' household labour participation, MLMP=male partners' labour market participation, SI=second-birth intentions; *p<0.05, **p<0.01, ***p<0.001.

of leave for the mother on the relationship between mother's weekly working hours and second-birth intentions (see Table V-19) and the effect of leave for the mother on male partners' housework participation (see Table V-20). Meanwhile, the positive effect of leave for the mother on mothers' weekly working hours was not transmitted to second-birth intention; the indirect effect of leave for the mother on second-birth rates via mother's working hours was insignificant.

Leave for the mother had an insignificant moderating effect on the relationship between mothers' weekly working hours and second-child intentions in 2004 (see Table V-19). Such an insignificant moderating effect remained, even after the second indirect effect of leave for the mother on second-birth intentions via male partners' housework participation was controlled (see Table V-20). In turn, the conditional indirect effect of leave for the mother on second-birth intentions was also insignificant.

Leave for the mother had no effect on male partners' share of housework within couples with one child in 2004 (see Table V-20). Accordingly, the indirect effect of leave for the mother on second-birth intention was also insignificant. Meanwhile, by controlling for the effect of leave for the mother on male household labour participation, the effect of mothers' weekly working hours on second birth intentions changed from insignificant to positive. Such a result indicates that male household labour participation significantly

influences the relationship between mothers' weekly working hours and second-birth intentions.

Year 2010

Leave for the mother had no effect on second-birth intentions in 2010 (see Table V-9). When the first indirect effect of leave for the mother on second-birth intentions via mothers' weekly working was controlled, the direct effect of leave for the mother on second-birth intentions was negative (see Table V-18). However, such a negative direct effect of leave for the mother on second-birth intentions became positive after controlling for the moderating effect of leave for the mother on the relationship between mothers' weekly working hours and second-birth intentions (see Table V-19). The positive direct effect of leave for the mother on second-birth intentions was sustained, even after controlling for the indirect effect of leave for the mother on second-birth intentions via male partners' housework (see Table V-21).

Leave for the mother had an insignificant effect on mothers' weekly working hours (see Table V-18). This insignificant effect remained, even after controlling for the moderating effect of leave for the mother on the relationship between mothers' weekly working hours and second-birth intentions (see Table V-19) and the effect of leave for the mother on male partners' housework participation (see Table

V-21). In turn, due to an insignificant effect of leave for the mother on mothers' weekly working hours, the indirect effect of leave for the mother via mother's weekly working hours was also insignificant.

Leave for the mother reduced the positive effect of mothers' weekly working hours on second-birth intentions (see Table V-19). However, such a negative moderating effect did not significantly influence the indirect effect of leave for the mother on second-birth intentions. That is, the conditional indirect effect of leave for the mother was insignificant.

Leave for the mother had no effect on male partners' share of housework within couples with one child in 2010 (as in 2004), as shown in Table V-21. Because leave for the mother had an insignificant effect on male partners' share of housework within couples with one child, the indirect effect of leave for the mother on second-birth intentions was also insignificant.

Summary and discussion

Leave for the mother had different mechanisms for affecting second-birth intentions in both 2004 and 2010. Leave for the mother did not significantly affect second-birth intentions by any proposed mechanisms in 2004. Otherwise, leave for the mother increased second-birth intentions and somehow moderated the positive relationship between mothers' weekly working hours and second-birth

intentions. Such a positive effect is in line with previous studies (Ang, 2015; Cygan-Rehm, 2016; Matysiak & Szalma, 2014;). Furthermore, the findings of the current study suggest that leave for the mother has a greater effect in raising fertility intentions in the context of deteriorating economic conditions. Under economic recessions, women's paid works become to have stronger income effects on childbearing and, in such a context of the positive association of female labour market participation, leave for the mother raise mothers' second-birth intentions by reducing opportunity costs of childbearing.

With respect to the impact of leave for the mother on female labour market participation, this increased mothers' weekly working hours in 2004, but had an insignificant effect in 2010. On the one hand, these findings are consistent with previous research results, showing that an increase in the duration and payment of parental leave resulted in an increase in mother's labour market participation (Bergemann & Riphahn, 2010; Geyer et al., 2015; Valentova, 2018; Waldfogel, 2013). On the other hand, this study indicates that such a positive effect is restricted somehow according to macro-economic contexts. In other words, when the labour market is unstable and job opportunities are lacking, leave for the mother is seemingly insufficient to raise female labour market participation.

2.5 Mechanisms of leave for the father on second-birth intentions

Year 2004

Leave for the father had a positive effect on second-birth intentions in 2004 (see Table V-9). However, this diminished after controlling for the effect of leave for the father on mothers' weekly working hours (see Table V-22). Such an insignificant direct effect on second-birth intentions remained, additionally controlled by the moderating effect of leave for the father on the relationship between mothers' weekly working hours and second-birth intentions (see Table V-23) and the effect of leave for the father on male partners' housework participation (see Table V-24). That is, in 2004, leave for the father did not affect second-birth intentions in a direct way.

Leave for the father increased mothers' weekly working hours in 2004 (see Table V-22). However, such a positive effect was not transmitted to second-birth intentions, which led to an insignificant indirect effect of leave for the father on second-birth intentions via mothers' weekly working hours. Meanwhile, the positive effect of leave for the father on mothers' weekly working hours became insignificant, when the moderating effect of leave for the father on the relationship between mothers' weekly working hours and second-birth intentions was added to the analysis model (see Table V-23).

Table V-22. Indirect Effect of Leave for the Father on Second-birth Intentions through Female Labour Market Participation.

	2004		2010	
	FLMP	SI	FLMP	SI
Individual-level(L1)				
FLMP		-0.001 (0.002)		0.008*(0.003)
Age		-0.095***(0.007)		-0.097***(0.006)
Education		0.131***(0.022)		0.154***(0.028)
Household income		0.004 (0.023)		0.009 (0.012)
MHLP		-0.008 (0.049)		-0.009 (0.090)
MLMP		0.002 (0.001)		0.003 (0.003)
Country-level (L2)				
Leave for father	0.027**(0.010)	-0.007 (0.017)	-0.118 (0.201)	0.001 (0.007)
FLMP		0.027**(0.010)		0.018**(0.005)
Gender equity		0.138 (0.897)		0.333 (0.716)
Labour market rigidity		-0.083*(0.034)		-0.392***(0.070)
Unemployment		0.021*(0.010)		-0.012 (0.007)
Cash		0.118 (0.066)		-0.038 (0.033)
Service		-0.173 (0.116)		0.406***(0.068)
Leave for mother		0.003*(0.002)		-0.002***(0.001)
Age		-0.183***(0.035)		-0.031 (0.016)
Education		-0.256*(0.113)		-0.063 (0.074)
Household income		0.309***(0.066)		0.174***(0.021)
MHLP		-0.246 (0.196)		-0.327 (0.236)
MLMP		0.059***(0.011)		0.009 (0.009)
Intercept	34.768***(1.608)	4.070***(0.844)	35.689***(1.535)	2.406*(1.106)
Residual variance				
L1 mediator	180.992 (20.333)***		144.730 (11.730)***	
dependent	0.883 (0.050)***		0.937 (0.043)***	
L2 mediator	25.239 (7.344)**		18.549 (5.546)**	
dependent	0.000 (0.001)		0.000 (0.001)	
Indirect effect				
Normal	0.010 (0.009)		-0.002 (0.004)	
Monte Carlo	0.000 (0.287)		-0.002 (0.333)	
	LL=-0.626, UL=0.626		LL=-0.732, UL=0.723	
AIC	38828.891		35992.520	
BIC	38986.268		36147.046	

Note: FLFP=women's labour market participation, MHLP=male partners' household labour participation, MLMP=male partners' labour market participation, SI=second-birth intentions; *p<0.05, **p<0.01, ***p<0.001.

Table V-23. Conditional Indirect Effect of Leave for the Father on Second-birth Intentions through Female Labour Market Participation.

	2004		2010	
	FLMP	SI	FLMP	SI
Individual-level(L1)				
FLMP		0.000 (0.002)		0.007*(0.003)
Age		-0.094***(0.006)		-0.093***(0.007)
Education		0.139***(0.022)		0.147***(0.026)
Household income		0.001 (0.022)		0.011 (0.012)
MHLP		-0.011 (0.048)		-0.008 (0.088)
MLMP		0.002 (0.001)		0.003 (0.003)
Country-level (L2)				
Leave for father	0.271 (0.270)	0.203 (0.142)	-0.062 (0.212)	0.499***(0.112)
FLMP		0.004 (0.011)		0.050***(0.013)
Leave for father* FLMP		-0.003 (0.003)		-0.016***(0.003)
Gender equity		-2.542 (2.168)		1.989*(0.957)
Labour market rigidity		-0.115 (0.060)		-0.298**(0.112)
Unemployment		0.020 (0.015)		-0.027*(0.011)
Family allowance		-0.125 (0.083)		-0.154**(0.059)
ECEC service		-0.204 (0.125)		0.458*(0.219)
Leave for mother		-0.003**(0.001)		-0.001 (0.001)
Age		0.104 (0.060)		0.011 (0.019)
Education		-0.148***(0.025)		-0.073 (0.066)
Household income		0.120 (0.074)		0.138 (0.092)
MHLP		1.018 (0.683)		-0.472 (0.747)
MLMP		0.004***(0.001)		0.012***(0.002)
Intercept	35.283***(1.563)	0.639 (0.789)	35.822***(1.527)	-0.365 (0.939)
Residual variance				
L1 mediator		175.372 (19.753)***		146.690 (11.002)***
dependent		0.879 (0.047)***		0.939 (0.040)***
L2 mediator		25.924 (7.047)***		19.041 (5.222)***
dependent		0.000 (0.001)		0.000 (0.002)
Conditional indirect effect				
Low Normal		0.002 (0.003)		-0.004 (0.014)
Monte Carlo		0.001 (0.297) LL=-0.644, UL=0.650		-0.003 (0.284) LL=-0.626, UL=0.611
Med Normal		0.000 (0.004)		0.000 (0.002)
Monte Carlo		0.000 (1.427) LL=-3.115, UL=3.113		0.001 (0.667) LL=-1.458, UL=1.455
Hig Normal		-0.002 (0.005)		0.003 (0.011)
Monte Carlo		-0.005 (2.805) LL=-6.136, UL=6.121		0.004 (1.443) LL=-3.145, UL=3.1158
AIC		41343.709		38371.570
BIC		41508.431		38533.423

Note: FLFP=women's labour market participation, MHLP=male partners' household labour participation, MLMP=male partners' labour market participation, SI=second-birth intentions; *p<0.05, **p<0.01, ***p<0.001.

Table V-24. Indirect Effect of Leaves for the Father on Second-birth Intentions through Male Household Labour Participation in 2004

	FLMP	MHLM	SI
Individual-level (L1)			
FLMP			-0.001 (0.002)
MHLM			-0.008 (0.049)
Age			-0.095***(0.007)
Education			0.131***(0.022)
Household income			0.004 (0.023)
MLMP			0.002 (0.001)
Country-level (L2)			
Leave for father	0.362 (0.277)	0.012*(0.005)	-0.539 (0.350)
FLMP			0.032***(0.008)
Leave for father*FLMP			0.295 (0.200)
MHLP			0.239 (0.377)
Gender equity			-1.486 (1.747)
Labour market rigidity			-0.060 (0.037)
Unemployment			0.021*(0.009)
Family allowance			0.120*(0.009)
ECEC service			-0.500*(0.246)
Leave for mother			0.005***(0.001)
Age			-0.236***(0.033)
Education			-0.380***(0.089)
Household income			0.403***(0.066)
MLMP			0.049**(0.016)
Intercept	34.768***(1.608)	0.583***(0.020)	6.865**(2.246)
Residual variance			
L1 mediator 1		180.992 (20.333)***	
mediator 2		0.435 (0.059)***	
dependent		0.883 (0.05)***	
L2 mediator 1		25.239 (7.334)**	
mediator 2		0.006 (0.002)**	
dependent		0.000 (0.001)	
Conditional indirect effect			
Low Normal		-0.095 (0.083)	
Monte Carlo		0.014 (0.799), LL=-1.709, UL=1.782	
Med Normal		0.183 (0.148)	
Monte Carlo		0.180 (1.322), LL=-2.438, UL=3.300	
Hig Normal		0.353 (0.289)	
Monte Carlo		0.351 (2.240), LL=-4.017, UL=5.676	
Indirect effect 2			
Normal		0.003 (0.005)	
Monte Carlo		0.003 (0.213), LL=-0.459, UL=0.471	
AIC		38797.171	
BIC		38974.854	

Note: FLFP=women's labour market participation, MHLP=male partners' household labour participation, MLMP=male partners' labour market participation, SI=second-birth intentions; *p<0.05, **p<0.01, ***p<0.001.

Table V-25. Indirect Effect of Leaves for the Father on Second-birth Intentions through Male Household Labour Participation in 2010

	FLMP	MHLM	SI
Individual-level (L1)			
FLMP			0.008*(0.003)
MHLM			-0.009 (0.090)
Age			-0.097***(0.006)
Education			0.154***(0.028)
Household income			0.010 (0.012)
MLMP			0.003 (0.003)
Country-level (L2)			
Leave for father	-0.118 (0.201)	0.011**(0.003)	0.204 (0.137)
FLMP			0.030**(0.001)
Leave for father*FLMP			-0.126 (0.086)
MHLP			-0.441 (0.258)
Gender equity			1.596 (1.042)
Labour market rigidity			-0.397***(0.073)
Unemployment			-0.017*(0.008)
Family allowance			-0.077 (0.049)
ECEC service			0.502***(0.090)
Leave for mother			-0.002**(0.001)
Age			-0.035*(0.014)
Education			-0.052 (0.072)
Household income			0.151***(0.032)
MLMP			0.004 (0.008)
Intercept	35.689***(1.535)	0.498***(0.023)	1.616 (1.200)
Residual variance			
L1 mediator 1		144.730 (11.730)***	
mediator 2		0.206 (0.024)***	
dependent		0.937 (0.043)***	
L2 mediator 1		18.549 (5.546)**	
mediator 2		0.005 (0.002)**	
dependent		0.000 (0.001)	
Conditional indirect effect			
Low Normal		-0.018 (0.031)	
Monte Carlo		-0.003 (0.631), LL=-1.348, UL=1.330	
Med Normal		0.037 (0.066)	
Monte Carlo		0.035(1.654), LL=-3.522, UL=3.702	
Hig Normal		0.093 (0.162)	
Monte Carlo		0.098 (3.662), LL=-7.69, UL=8.24	
Indirect effect 2			
Normal		-0.005 (0.003)	
Monte Carlo		-0.004 (0.292), LL=-0.646, UL=0.628	
AIC		35959.341	
BIC		36133.806	

Note: FLFP=women's labour market participation, MHLP=male partners' household labour participation, MLMP=male partners' labour market participation, SI=second-birth intentions; *p<0.05, **p<0.01, ***p<0.001.

The moderating effect of leave for the father on the relationship between mothers' weekly working hours and second-birth intentions was insignificant (see Table V-23) and such an insignificant moderating effect remained, even after the second indirect effect of leave for the father on second-birth intentions via male partners' housework participation was controlled. As a result, the conditional indirect effect of leave for the father on second-birth intentions via mothers' weekly working hours was also insignificant.

Leave for the father increased male partners' share of housework within couples with one child in 2004 (see Table V-24). However, the positive effect of leave for the father on male household labour participation was not transmitted to second-birth intentions. That is, the indirect effect of leave for the father on second-birth intentions via male household labour participation was insignificant.

Year 2010

Leave for the father had an insignificant effect on second-birth intentions in 2010 (see Table V-9), and such an insignificant direct effect remained after controlling the effect of leave for the father on mothers' weekly working hours (see Table V-22). When the moderating effect of leave for the father on the relationship between mothers' weekly working hours and second-birth intentions was added

to the analysis model, the direct effect of leave for the father became positive (see Table V-23). However, such a positive direct effect diminished after additionally controlling for the indirect effect of leave for the father on second-birth intentions via male partners' housework participation (see Table V-25).

Leave for the father had an insignificant effect on mothers' weekly working hours in 2010 (see Table V-22). In turn, the indirect effect of leave for the father on second-birth intentions via mothers' weekly working hours was also insignificant. Meanwhile, the insignificant effect of leave for the father on female labour market participation was sustained, even after controlling the moderating effect of leave for the father on the relationship between mother's weekly working hours and second-birth intentions (see Table V-23) and the effect of leave for the father on male partners' housework participation (see Table V-25).

Leave for the father reduced the positive effect of mothers' weekly working hours on second-birth intentions (see Table V-23). However, the negative moderating effect disappeared when the effect of leave for the father on male partner's housework participation was controlled (see Table V-25). The moderating effect of leave for the father on the relationship between mothers' working hours and second-birth intentions was not transmitted to second-birth intentions. That is, the conditional indirect effect of the leave for the father on

second-birth intentions via mothers' weekly working hours was insignificant (see Tables V-23 and V-25).

Leave for the father increased mothers' weekly working hours in 2010, as in 2004 (see Table V-25). However, the positive effect of leave for the father on male household labour participation was not transmitted to second-birth intentions; the indirect effect of leave for the father on second-birth intentions via male household labour participation was insignificant.

Summary and discussion

Leave for the father did not significantly affect second-birth intentions by any proposed mechanisms in both 2004 and 2010. In addition, leave for the father had an insignificant influence on mothers' working hours. However, leave for the father meaningfully raised men's housework participation. The positive effect of leave for the father on male partners' share of housework within couples having one child supports the previous evidence on analysis of the effect of leave schemes on division of childcare and housework. In previous findings of country-specific and cross-country analyses, the introduction of daddy quota raised fathers' involvement in childcare and housework and enabled fathers to take longer parental leave, sharing childcare and housework more equally after their leave (Almqvist & Duvander, 2014; Hass & Hwang, 2008; Patnaik, 2019;

Meil, 2013). This study's results show that such a positive effect of leave for the father on the division of household labour is consistent, regardless of individual socio-economic features, gender equity levels, labour market structure, and macro-economic conditions.

VI. Conclusion

1. Summary of research findings

The aim of this study was to explicate family policy mechanisms that affect fertility intentions. I postulated and tested four different pathways by which family allowance, ECEC services, childcare-related leave for the mother and childcare-related leave for the father could have an impact on second-birth intentions. The four different mechanisms were as follows. First, family policies can directly increase fertility intentions by providing financial support for families with children, which offset the costs of having and rearing children (the direct effect). Second, family policies can indirectly increase fertility intentions by encouraging female labour market participation, which contributes to household incomes (the first indirect effect). Third, family policies can moderate the relationship between female labour market participation and fertility intentions, and in turn, strengthen the positive indirect effect of family policies on fertility intentions via female labour market participation (the conditional indirect effect). Finally, family policies can indirectly increase fertility intentions by encouraging male household labour participation, which contributes to gender equity within families (the second indirect effect).

By analysing the mechanisms of family policies that affect

fertility intentions, this study employed four research strategies. The first was to distinguish the effects of family policy on second-birth intentions from the effects of individual-level demographic and socio-economic features and country-level socio-economic structures on second-birth intentions. The second strategy was to elaborate the ways in which family policies affect fertility intentions. In doing so, multilevel path analyses were conducted. Finally, this study analysed the effect of family policy on second-birth intentions at two different time-points (2004 and 2010) to examine how family policy mechanisms acted on fertility intentions differed under the economic recession. The summary of the research results are as follows.

Family allowance had no significant impact on second-birth intentions in both 2004 and 2010. Family allowance had an insignificant effect on second-birth intentions in a direct way and insignificantly moderated the relationship between mothers' working hours and second-birth intentions. The indirect effects of family allowance on second-birth intentions via mothers' working hours and fathers' housework participation were also insignificant. Meanwhile, the negative impact of family allowance on mothers' working hours was evident.

ECEC services had a negative direct effect on second-birth intentions and a positive moderating effect on the relationship between female labour market participation and second-birth intentions in 2004.

Otherwise, in 2010, ECEC services increased second-birth intentions in a direct way and had a negative moderating effect on the relationship between female labour market participation and second-birth intentions. Meanwhile, the impact of ECEC services on women's weekly working hours was insignificant and the impact of ECEC services on male partners' housework participation was positive in both 2004 and 2010. Regardless, an indirect and conditional indirect effect of ECEC services on fertility intentions via female labour market participation, and an indirect effect of ECEC services on fertility intentions via male household labour participation were both insignificant.

Childcare-related leave for the mother did not significantly affect second-birth intentions by any proposed mechanisms in 2004. Otherwise, in 2010, leave for the mother increased second-birth intentions in a direct way and had a negative moderating effect on the relationship between female labour market participation and fertility intentions. Meanwhile, leave for the mother positively affected female labour market participation in 2004; however, this positive effect was not transmitted to second-birth intentions. The impact of leave for the mother on male partners' housework participation was insignificant in both 2004 and 2010.

Finally, childcare-related leave for the father did not significantly pass its effects on to second-birth intentions through the proposed four pathways. However, leave for the father meaningfully

increased men's housework participation, which was not transmitted to second-birth intentions.

2. Implications of the study

2.1 Theoretical implications

These research results provide new knowledge about the way family policy provision can exert influence on fertility intentions by interacting with women's labour market participation and men's household labour participation in post-industrialised socio-economic contexts. In addition, the findings of this study offer theoretical contributions as follows.

The current study supports new home economics approaches to a decline of fertility rates in developed countries. By offsetting direct and indirect costs of childrearing, ECEC services and leave for the mother directly raise fertility intentions of women with a child. ECEC services reduce the negative relationship between female labour market participation and second-birth intentions. Furthermore, this study suggests that such mechanisms of ECEC services and leave for the mother on second-birth intentions differ according to the social context of the association between female labour market participation and fertility outcomes. When the relationship between female labour market participation and second-birth intentions is positive, ECEC services and leave for the mother exert a positive impact on

second-birth intentions in a direct way. Otherwise, when the association of female labour market participation with second-birth intentions is negative, ECEC services exert a positive influence on second-birth intentions by moderating the relationship between female labour market participation and second-birth intentions.

This study also shows that ECEC services and leave for the mother mitigate the impact of economic uncertainty on fertility outcomes. The positive impact of ECEC services and leave for the mother on second-birth intentions was greater in 2010 than in 2004. These results indicate that under the circumstances of increasing economic uncertainty, family policy provisions help couples to sustain income and job security even after having a child, and in turn, can positively affect fertility outcomes. Bell et al. (2011) found that the Great Recession made young people suffer disproportionately more than the adults. Previous studies on the relationship between economic uncertainty and fertility rates consistently reported that unemployment, and objective and subjective income/job insecurity negatively affect fertility outcomes, and that such negative effects are more significant to those young people in low-income and lower educational attainment groups (Adserá, 2011a; Adserá, 2011b; Ayllón, 2019; Fahlén & Oláh, 2019). Against such economic uncertainty, ECEC and childcare leave for the mother and father can minimise the absence or reduction of paid work for taking care of a young child and, consequently, offset

parenthood costs for couples. Otherwise, family allowance somehow supports families with children financially with regard to direct costs of children, but fails to keep mothers in the labour market after having a child. Consequently, unlike ECEC and leave for the mother, family allowance cannot lead to an increase in fertility intentions.

Meanwhile, this research shows the limited role of family policies with regard to raising female labour market participation. Public expenditure on family allowance reduced women's working hours. The duration of well-paid leave available to mothers increased weekly working hours of women with one child in 2004, but had no statistically significant effects in the rest of the samples. Public spending on ECEC services and the duration of well-paid leave for the father had an insignificant impact on mothers' weekly working hours. There can be various possible reasons for such limited positive effects of family policy provisions on women's labour market participation. First, the positive impact of family policy provisions might be overstated or underestimated in previous studies that failed to distinguish policy effects from both individual-level and country-level covariate effects. Second, family policy provisions might be effective for work–family reconciliation of mothers with a child not independently, but together with other family policies, institutions, and socio-economic structures. Third, apart from methodological issues, the design of today's work–family reconciliation policies is not

effective in supporting all groups of women. Formal childcare and education services for younger children are costly and lack flexibility in terms of operating hours, especially in a market/private-driven care regime. The use of and entitlement to childcare-related leave schemes, in most cases, are bound to formal, regular, and full-time employment status. Consequently, though highly educated and high-income couples benefit from present work–family policies at best, the groups characterised by low-income and low-level education and precariousness of income and employment lack access to those policy provisions. Finally, it seems that the effect of family policies on female labour market participation are inevitably ineffective in a context where the labour market is unstable and job opportunity is lacking under the current unfavourable macro-economy.

A gender equity approach to fertility rates is partially supported by this study. ECEC services and leave for the father significantly raised men's share of housework within couples with one child. However, such a positive effect was not transmitted to second-child intentions. In addition, the relationship between male partners' housework participation and second-child intentions was insignificant or negative. In fact, previous studies analysing the impact of male household labour participation on fertility outcomes at the macro level are few and largely inconclusive (Myrskyla et al., 2009; Neyer et al., 2013). One possible reason for these inconclusive results

is that the relationship between gender equality/equity in the division of housework and fertility outcomes differs depending on societal gender norms and ideology. Even though the division of housework is unequally distributed within couples, if women cannot feel the 'unfairness' of such unequal a division of household labour under traditional role ideology, fertility outcomes will not be influenced by the gendered division of household labour. However, if women are not satisfied with the levels of participation of their partners and feel this unfairness, relatively high levels of gender equality in housework division can have a negative effect on fertility.

Thus, the insignificant indirect impact of family policies on second-child intentions via male partners' housework participation and the insignificant or negative relationship between male household labour participation and fertility intentions found in this study is seemingly counter to the arguments of a gender equity approach. However, some research results of the current study shed light on the positive effects of male labour market participation on fertility outcomes. When the indirect path of family policy provision on second-birth intentions via male partners' housework participation was added to the analysis model, the interrelationship between family policy provisions, mothers' working hours, and second-birth intentions was often significantly changed. For instance, after the indirect effect of leave for the father on second-birth intentions via male partners'

housework participation was controlled, the positive indirect effect of leave for the father on second-birth intentions became insignificant in 2010. That is, leave for the father contributed to increasing second-birth intentions by encouraging male partners' housework participation. These results suggest that ECEC services and leave for the father possibly contribute to increasing second-birth intentions by encouraging male partners' housework participation.

2.2 Policy implications

In this section, I will draw out policy implications on work–family reconciliation, gender equity, and fertility from the findings of this study. As already discussed, ECEC services and leave for the mother are effective in reducing the 'parenthood penalty', which involves a loss of earnings and career prospects due to the reduced and/or interrupted employment, the time cost of raising and educating a child, and undertaking household labour. In addition, ECEC services and leave for both the mother and father also contribute to gender equality in the public and private spheres by reducing the gender gap in the labour market and increasing men’s participation in childcare and housework.

To maximise such positive effects further, policy makers and implementers should seek ways of increasing use of ECEC services and childcare-related leave for mothers and fathers. There are

seemingly two ways to do so; the first is to increase the benefit levels and the second is the relaxation of entitlements. In particular, with respect to childcare-related leave schemes, entitlements are often restricted to specific types of employment conditions, such as formal, continuous, and full-time employment. However, the young and women who can satisfy such conditions are limited and decreasing in the post-industrialised labour market. Entitlement to childcare-related leave schemes needs to be relaxed to benefit a more diverse group of parents. Moreover, to encourage the use of leave, payment levels should be increased. The key role of childcare-related leave schemes is to minimise the costs of parenthood that occur when the mother or father are temporally out of the labour market to take care of children. Therefore, well-paid and not-too-long periods of leave should be offered to parents.

The Korean government has continued to expand childcare subsidies, and as a result, all children aged 0–5 years have been financially supported in terms of ECEC services expenses since 2013. In turn, such an increase in the state's financial support for ECEC services has led to a substantial increase in the number of children being supported by ECEC services. In 2017, the enrolment rates in ECEC services among children aged 0–2 years was 56.3%, placing Korea with the top OECD countries along with Luxemburg, Iceland, France, and Norway (OECD, 2019a).

Such an expansion of state support for ECEC services has been expected to contribute to a rise of fertility rates in Korean society. However, there is a possibility that the positive impact of ECEC services on fertility outcomes is limited. The current study shows that the positive effects of ECEC services on second-birth intentions can be expected when the association between female labour market participation and second-birth intentions is positive. However, in Korean society, such a positive relationship between women's paid work and fertility is hardly expected because the positive income effects of women's paid work on fertility rates are low, while the negative substitution effects of women's paid work on fertility are high in Korean social and labour market contexts. Korea's gender wage gap is the highest among OECD countries and a large portion of employed women work in non-standard work positions characterised by low income and job insecurity, which implies that women's paid work has a low-income effect on fertility (OECD, 2017). Otherwise, the mixture of high levels of women's education attainment (OECD, 2019b), work-family role incompatibility due to a lack of support from society and family, and labour market rigidity and dualism make employed women's motherhood expensive, which implies that women's paid work has a high substitution effect on fertility rates. Therefore, in such contexts, the expansion of ECEC services was not enough to raise fertility intentions without the

implementation of additional policy, which can change the negative relationship between female labour market participation and fertility intention. More comprehensive policy intervention is seemingly required to change the relationship between female labour market participation and fertility outcomes, such as reducing the gender wage gap, flexible working arrangements, and changing workplace culture.

Unlike ECEC services, the level of payments in childcare-related leave schemes are still low, and the recipients of childcare-related leave schemes are limited in Korea. Mothers can use 90 days of maternity leave and parents can use parental leave of one year in total until children reach the age of eight. Recently, 'daddy bonus' has been introduced, whereby the second user of parental leave among the couple gets a higher level of payments. However, apart from maternity leave and daddy bonus, the duration of well-paid leave (more than 66% of income) is zero. The levels of leave benefits are seemingly insufficient to reduce the 'parenthood penalty'. In addition, the use of parental leave is too small to expect it to drive any positive social outcomes. Users of parental leave in 2016 were 20.2 per 100 live births (for women) and 1.9 for men; the average parental leave users in OECD countries was 118.9 for women and 43.4 for men (OECD, 2019c). Raising the levels of leave payments could be a good solution for increasing usage of parental leave; however, it is also necessary to extend the entitlement of

childcare-related leave schemes. Parents who are self-employed or employed without employment insurance are not entitled to childcare-related leave schemes, even though self-employers and irregular employees account for a substantial portion of total employment in the Korean labour force (21% of all employees were temporary workers and 25% of the total workforce were self-employed workers in 2018, well above the OECD average) (OECD, 2019d).

The results of this study suggest that family allowance has an insignificant effect on second-birth intentions and gender equity in the division of housework, and negatively influences female labour market participation. Notwithstanding, the expansion of family benefits is inevitable and required in Korean society. Since the 1997 crisis, income inequality has markedly deteriorated. In 2018, Korea's Gini coefficient was 0.35, which was the 7th highest level in OECD countries (OECD, 2019e). As income inequality increases, children are more likely to live in relative income poverty, which impinges on child development and wellness, and deepens the poverty trap. In 2016, child relative income poverty in Korea was 15.2%, which was well above the average of OECD countries (OECD, 2019f).

Despite that financial support for families with children has been seriously needed in Korean society, it has only recently started with the introduction of family allowance in 2018. Social expenditure on cash benefits for families was 1.43% of GDP in 2015, which was

well below the average of OECD countries (2.4%); excluding leave benefits and childcare subsidies, social expenditure on cash benefits for families was less than 0.2% of GDP, which was the lowest in OECD countries (OECD, 2019g). Considering post-industrialised labour market contexts, the state's financial support for families with children is still low and should be expanded further. However, it seems that the expansion of cash benefits for families with children is necessarily tied to active policies for encouraging female labour market participation, because the negative impact of cash benefits on women's labour supply was evident in this study as well as prior research.

3. Limitations of the study and recommendations on further research

This study uncovers the efficacy and limits of family policy provision by identifying family policy's mechanisms and examining their effects. However, there are still some limitations to the present study. First, indirect and conditional effects in this study were estimated only at the cluster level, even though these effects could also exist at the individual level. In multilevel mediation analysis, theoretically, mediation can be present through both the individual-level mediator and the cluster-level mediator, when the relationship between the mediator and outcome differs at the individual- and cluster-levels (Pituch & Stapleton, 2012). Given that

the association between the mediator and outcome can be different according to levels in some analyses, there is a possibility that mediation exists both at the individual and cluster levels. Therefore, future studies need to examine not only the between-cluster indirect effect of family policies on fertility through female labour market participation and male household labour participation, but also the within-cluster effect.

Second, this study is restricted to examining the individual effects of each family policy programme on fertility intentions. Previous studies show that different family policy regimes result in different social outcomes, such as fertility and gender equality in public and private spheres, and that the directions and sizes of the effects of family policies on female labour market participation and fertility outcomes differ in different family policy regimes. From those research results, we can suppose that the whole and interaction effects of different family policy programmes on fertility outcomes might be significant, as well as the effects of individual policies. Although this study examined the mechanisms of each family policy programme on fertility intentions by controlling other family policy programmes with consideration for other family policies' impact, it did not fully identify the individual and whole effects of family policies on fertility outcomes. To enhance the precise measurement of, and our understanding of, the mechanism of family policies on fertility and

other social outcomes, future research needs to investigate the total and interactional effects of different family policies as well as each policy individually.

Third, a lack of data in the field of family policy restrains the scope and quality of research. Although the availability of data has been improved in recent years, there remain few viable indicators. Family policy is multidimensional, and family policy provisions each consist of various instruments and measures. For example, within ECEC, there exists great variety with respect to types of services, ways of financial support, welfare mix (market-, civil society- and state-driven delivery and funding), teacher qualification, education/service content and so on. Thus, the construction of detailed comparative data in the field of family policy is required to deepen our knowledge of family policy and its mechanisms.

Finally, the dependent variable of this study was not fertility rates but fertility intentions. Statistics on fertility shows that there is a gap between intended and realised fertility, which is larger in low fertility countries. Therefore, the research results of this study need to be conservatively interpreted and applied to policy implementation and practice with respect to fertility goals. Future studies are necessary to carry out analyses on family policy mechanisms on fertility rates, as well as fertility intentions. Moreover, further research on understanding the gap between fertility intentions and realised fertility are necessary.

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국문초록

가족정책이 출산의도에 영향을 주는 메카니즘

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이 연구의 목적은 어떠한 기제를 통해 가족정책이 출산의도에 영향을 미치는지 분석하는데 있다. 본 연구는 후기산업사회에서 나타나고 있는 저출산 현상을 개인의 자발적인 선택의 결과로써 나타난 것이 아니라, 개인이 속해있는 사회경제적 및 제도적인 환경에 의해 강요된 비자발적인 선택의 결과물로 본다. 즉, 복지국가가 노동시장구조의 변화에 따른 경제적 안정성의 저하 그리고 젠더 구조의 변화에 따른 공적영역 내 양성평등수준과 사적영역 내의 양성평등수준 간 간극 증가, 일가족양립의 어려움 등과 같은 개인들이 겪는 위험들과 어려움들에 적절하게 대응하지 못한 가운데, 개인들이 그와같은 후기산업사회의 신위험들을 타개하기 하는 방안으로 결혼 및 출산을 미루거나 포기하고 있다. 대표적으로 청년들이 결혼과 출산 대신 고용지위과 수입수준을 확보해 줄 수 있는 자신의 인적자본 (교육 및 일 경험)을 높이는데 힘쓰고, 여성들이 일가족양립의 어려움을 타개하는 방안으로 자녀의 수를 줄이거나 아예 출산 또는 결혼을 포기하고 있다. 따라서, 본 연구는 가족정책이 위에 열거한 후기산업사회의 신사회 위험들에 어떠한 방식으로 대응하면서 개인의 출산의도에 영향을 미

치는지를 살펴보고자 한다.

기존의 이론적 논의과 경험적 연구들을 바탕으로, 본 연구는 가족정책이 출산의도에 영향을 주는 네 가지 경로를 상정하고 검증해보았다. 첫번째 기제는 가족정책이 출산의도에 직접적인 영향을 주는 것이다. 자녀가 있는 가족에게 직접적인 재정적 도움을 제공하는 가족정책프로그램들은 자녀양육비를 벌충함으로써 출산의도를 높이는데 기여한다. 두 번째 경로는 여성의 노동시장 참여를 높임으로써 출산의도에 긍정적인 영향을 끼치는 가족정책의 간접적인 효과기제이다. 경제학적 관점에서 살펴보면, 높은 자녀양육비와 임금 및 고용 불안정은 부모기로의 전환 시기를 늦추고 그다음 자녀의 출산을 미루게 함으로써 출산에 부정적인 영향을 주는데, 여성의 노동수입은 가구의 재정적 여건을 나아지게 함으로써 그 문제들을 해결하게 된다. 세 번째로, '가족정책 → 여성노동시장참여 → 출산'에 이르는 간접효과 과정에서 가족정책이 여성노동시장참여와 출산 간의 관계를 조정함으로써 간접효과기제 효과를 높이는 것이다. 가족정책은 일가족양립을 돕는 기능을 한다. 일가족양립성이 높아지면 모성의 기회비용이 낮아지면서 여성의 노동시장참여가 갖는 임금효과를 강화시킴으로써 출산에 긍정적인 영향을 줄 수 있다. 출산의도를 증가시키는 가족정책의 마지막 기제는 남성의 가사노동참여를 촉진시킴으로써 출산의도에 간접적으로 긍정적인 영향을 주는 것이다. 성형평 관점에서 살펴보면, 남성 가사노동참여의 증가는 가족 내 성평등 수준을 높이고 이로 인해 공적영역과 사적영역 간의 성평등 수준 차이를 좁힘으로써 출산의도를 높이는데 기여한다.

본연구는 가족정책이 출산의도에 영향을 주는 기제를 분석하기 위해, 2수준의 다수준 경로분석을 실시하였다. 개인수준 데이터는 유럽사회조사 (European Social Survey)의 2차년(2004년) 그리고 5차년(2010년) 자료를 사용하였고, 국가수준 데이터는 유럽 사회지출 데이터베이스 (Erostat Social Spending Database), OECD 가족 데이터베이스 (OECD Family Database), INLPR (International Review of Leave Policies and Related Research)에서 매년 발간하는 리뷰보고서 그리고 GGGI

(Global Gender Gap Index)의 자료를 사용하였다.

연구결과를 요약하면 다음과 같다. 첫째, 가족수당은 가정한 네 가지경로를 통해서 둘째아 출산의도에 통계적으로 의미있는 영향을 주지 못했다. 다만, 가족수당은 여성노동시장참여에 부적인 영향을 주는 것으로 나타났다. 둘째, 0-5세 아동을 대상으로 하는 영유아 교육 및 보육 서비스에 대한 국가의 재정적지원은 여성의 일의 둘째아 출산의도에 대한 부적 영향 정도를 줄임으로써 (2004년) 또는 직접경로를 통해 둘째아 출산의도에 긍정적인 영향을 주었다 (2010년). 또한 2004년과 2010년 자료분석 모두에서, 영유아 교육 및 보육 서비스는 남성의 가사참여를 높이는 것으로 나타났다. 셋째, 여성이 사용가능한 출산 및 육아관련 휴가제도는 2010년에만 직접경로를 통해 둘째아 출산의도에 긍정적인 영향을 주었다. 한편, 2004년에는 여성의 노동시장 참여 정도를 높이는 정적인 영향을 보여주었다. 마지막으로, 남성만이 사용가능한 출산 및 육아관련 휴가제도는 가정한 네 가지경로를 통해서 둘째아 출산의도에 통계적으로 의미있는 영향을 주지 못했다. 그러나 남성의 가사참여를 높이는 효과가 2004년과 2010년 자료분석 모두에서 나타났다.

이같은 연구결과들은 다음과 같은 이론적 그리고 정책적 함의를 같는다. 첫째, 본 연구 결과는 영유아 교육 및 보육 서비스와 여성의 출산 및 육아휴가제도가 여성의 일가족양립을 도와 아이를 낳고 키우면서 발생하는 기회비용을 줄이도록 도움으로써 출산의도를 높인다는 기존의 출산에 대한 경제학적 가설을 지지한다. 또한 영유아 교육 및 보육 서비스와 여성의 출산 및 육아휴가제도가 출산의도에 미치는 직접효과는 경제불황시기에 더 크게 나타나, 이 제도들이 거시경제의 불안정성 및 불확실성이 출산에 미치는 부적인 영향을 줄인다는 경험적 증거를 제시한다. 다만, 본 연구를 통해, 그러한 직접적 경로 효과는 그 사회의 여성의 노동시장참여와 출산 간의 관계가 정적일 때에만 나타났기 때문에, 이 둘 관계가 부적인 한국사회의 경우, 영유아 교육 및 보육 서비스와 여성의 출산 및 육아휴가제도의 출산률 상승효과를 제한적일 것으로 보인다. 따라서, 한국정부

는 여성의 일과 출산 간의 부적인 관계를 정적인 관계를 역전시키기 위한 성별 간 임금격차 감소, 유연한 근로시간 제도의 확대, 일중심적인 직장문화의 변화 등을 모색하는 보다 포괄적인 정책들을 적극적으로 활용해야할 것으로 여겨진다. 둘째, 본 연구결과, 가족정책이 가족 내 양성평등 수준을 높이고 그 결과 출산의도가 높아진다는 양성평등 관점의 이론들에 기반한 가설은 지지되지 못했다. 그러나, 남성가사참여가 가족정책, 여성의 노동시장참여 그리고 둘째아 출산의도 간의 관계에 통계적으로 의미 있는 변화를 주는 것을 확인할 수 있었다. 따라서 추후 이와 관련된 후속 검증 연구가 필요해 보인다. 셋째, 가족양육 수당은 둘째아 출산의도에 통계적으로 의미있는 영향을 미치지 않는 것으로 나타났으나, 임금격차가 심화되고 아동의 상대적 빈곤수준이 높아지고 있는 한국사회에서 아이가 있는 가족에 대한 현금지원제도를 확대하는 것은 필수불가결한 것으로 보여진다. 다만, 가족수당이 여성의 노동시장참여에 부적인 영향을 주는 것으로 나타났기 때문에, 여성의 노동시장참여를 활성화시키는 적극적인 노동시장 정책이 병행되어야 할 것으로 보인다. 마지막으로, 자녀 출산 및 육아 관련 휴가제도는 여성의 노동시장참여와 남성의 가사노동참여를 촉진시킴으로써 사회의 공적 및 사적 영역 내 성평등 수준을 높이는데 기여하는 것으로 나타났다. 따라서 OECD 국가 내에서 매우 낮은 양성평등 수준을 보이고 있는 한국사회에서 이들 제도의 확대는 필요하다. 낮은 급여수준을 높이고 비정규직 근로자와 자영업자들도 출산 및 육아 휴가제도를 사용할 수 있도록 그 수급조건을 완화시켜 보다 많은 부모들이 제도를 이용할 수 있도록 해야 할 것이다.

주요어: 가족정책, 출산, 일가족양립, 양성평등, 경제불황, 후기산업화, 다수준경로분석
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